

TABLE 2—LIST OF WYOMING INFRASTRUCTURE ELEMENTS AND REVISIONS THAT THE EPA IS PROPOSING TO TAKE NO ACTION ON

Proposed for no action
(revision to be made in separate rulemaking action.)

January 19, 2012 *submittal*—2008 Pb NAAQS: (D)(i)(I) prongs 1 and 2, (D)(i)(II) prong 4.

February 6, 2014 *submittal*—2008 Ozone NAAQS: (D)(i) prongs 1–4 and (C) (proposed action on (D)(i)(II) prong 3 and (C) at 81 FR 53365, Aug. 12, 2016).

January 31, 2013 *submittal*—2010 NO₂ NAAQS: (D)(i)(I) prongs 1 and 2, (D)(i)(II) prong 4.

June 2, 2013 *submittal*—2010 SO₂ NAAQS: (D)(i)(I) prongs 1 and 2, (D)(i)(II) prong 4.

December 22, 2015 *submittal*—2012 PM_{2.5} NAAQS: (D)(i)(I) prongs 1 and 2, (D)(i)(II) prong 4.

VIII. Incorporation by Reference

In this rulemaking, the EPA is proposing to include in a final EPA rule regulatory text that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, the EPA is proposing to incorporate by reference the Wyoming Department of Environmental Quality General Rules of Practice and Procedure, Chapter 1, General Provisions, Section 16, Air Program State Implementation Plan Chapter 1, General Provisions, Section 16, Air Program State Implementation Plan pertaining to state board requirements VI.6. b. *Sub-element (ii): State boards*, of this preamble. The EPA has made, and will continue to make, these documents generally available through www.regulations.gov and/or at the EPA Region 8 office (please contact the person identified in the “For Further Information Contact” section of this preamble for more information).

IX. Statutory and Executive Orders Review

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable federal regulations (42 U.S.C. 7410(k), 40 CFR 52.02(a)). Thus, in reviewing SIP submissions, the EPA’s role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this proposed action merely approves some state law as meeting federal requirements and disapproves other state law because it does not meet federal requirements; this proposed action does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a “significant regulatory action” subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, Oct. 4, 1993);
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);

- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, Aug. 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and,
- Does not provide the EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, Feb. 16, 1994).

The SIP is not approved to apply on any Indian reservation land or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Greenhouse gases, Incorporation by reference, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: October 20, 2016.

Shaun L. McGrath,

Regional Administrator, Region 8.

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 10 and 11

[PS Docket No. 15–91; PS Docket No. 15–94; FCC 16–127]

Wireless Emergency Alerts; Amendments to the Commission’s Rules Regarding the Emergency Alert System

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document proposes revisions to Wireless Emergency Alert (WEA) rules to improve WEA, leveraging advancements in technology to improve WEA’s multimedia, multilingual and geo-targeting capabilities, as well as lessons learned from alert originators’ experience since WEA was initially deployed. This document also proposes steps to improve the availability of information about WEA, both to empower consumers to make informed choices about the emergency information that they will receive, as well as to promote transparency for emergency management agencies and other WEA stakeholders. By this action, the Commission affords interested parties an opportunity to participate more fully in WEA, and to enhance the utility of WEA as an alerting tool.

DATES: Comments are due on or before December 8, 2016 and reply comments are due on or before January 9, 2017.

ADDRESSES: You may submit comments, identified by PS Docket No. 15–91, P.S. Docket No. 15–94, FCC 16–127, by any of the following methods:

- *Federal eRulemaking Portal*: <http://www.regulations.gov>. Follow the instructions for submitting comments.

- *Federal Communications Commission's Web site*: <http://fjallfoss.fcc.gov/ecfs2/>. Follow the instructions for submitting comments.

- *People with Disabilities*: Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by email: FCC504@fcc.gov or phone: 202-418-0530 or TTY: 202-418-0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT:

James Wiley, Attorney Advisor, Public Safety and Homeland Security Bureau, at (202) 418-1678, or by email at James.Wiley@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Further Notice of Proposed Rulemaking in PS Docket No. 15-91, No. 15-94, FCC 16-127, released on September 29, 2016. The document is available for download at http://transition.fcc.gov/DailyReleases/Daily_Business/2016/db0929/FCC-16-127A1.pdf. The complete text of this document is also available for inspection and copying during normal business hours in the FCC Reference Information Center, Portals II, 445 12th Street SW., Room CY-A257, Washington, DC 20554. To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an email to FCC504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY).

Initial Paperwork Reduction Act of 1995 Analysis

This Further Notice of Proposed Rulemaking seeks comment on potential new or revised proposed information collection requirements. If the Commission adopts any new or revised final information collection requirements when the final rules are adopted, the Commission will publish a notice in the **Federal Register** inviting further comments from the public on the final information collection requirements, as required by the Paperwork Reduction Act of 1995, Public Law 104-13 (44 U.S.C. 3501-3520). In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), the Commission seeks specific comment on how it might

“further reduce the information collection burden for small business concerns with fewer than 25 employees.”

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), we have prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in this *Further Notice of Proposed Rulemaking (FNPRM)*. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *FNPRM*. We will send a copy of the *FNPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA). In addition, the *FNPRM* and IRFA (or summaries thereof) will be published in the **Federal Register**.

A. Need for, and Objectives of, the Final Rules

2. With this *FNPRM*, we take another step towards strengthening Wireless Emergency Alerts (WEA) by proposing revisions to our rules to empower alert originators to participate more fully in WEA, to empower consumers to make more informed decisions about the kind of WEA service that their CMS Provider offers, and to enhance the utility of WEA as an alerting tool. Our proposals fall into four categories, ensuring the provision of effective WEA Alert Messages, incorporating future technical advancements to improve WEA, developing consumer education tools, and improving WEA transparency.

3. Specifically, with respect to ensuring the provision of effective WEA Alert Messages, we propose to establish clear definitions and requirements for CMS Providers participating in WEA in whole and in part. We ensure the provision of effective WEA Alert Messages by removing language from our rules that may contribute to emergency management agencies' uncertainty about WEA's quality of service. We require Participating CMS Providers to offer subscribers a method of accessing pending Alert Messages. We propose to require that earthquake-related alerts be delivered to the public in fewer than three seconds. We also seek comment on how to leverage the improvements to WEA that we adopt today to continue to improve WEA's value during disaster relief efforts. With respect to incorporating future technical advancements into WEA, we seek comment on and propose of a number

of technological innovations that could expand WEA's multimedia, multilingual and geo-targeting capabilities, including innovations on 5G networks. With respect to developing consumer education tools, we propose to promote more informed consumer choice through improvements to the point-of-sale notifications for Participating CMS Providers' mobile devices, and to the WEA interface. Finally, we propose to improve WEA transparency through requiring Participating CMS Providers to disclose their performance along three key metrics, latency, geo-targeting, and reliability, and we seek comment on whether additional alert logging could be instrumental in allowing them to collect relevant data.

4. This *FNPRM* represents another step towards achieving one of our highest priorities—“to ensure that all Americans have the capability to receive timely and accurate alerts, warnings and critical information regarding disasters and other emergencies.” This *FNPRM* also is consistent with our obligation under Executive Order 13407 to “adopt rules to ensure that communications systems have the capacity to transmit alerts and warnings to the public as part of the public alert and warning system,” and our mandate under the Communications Act to promote the safety of life and property through the use of wire and radio communication. We take these steps as part of an overarching strategy to advance the Nation's alerting capability, which includes both WEA and the Emergency Alert System (EAS), to keep pace with evolving technologies and to empower communities to initiate life-saving alerts.

B. Legal Basis

5. The proposed action in this *WEA Further Notice of Proposed Rulemaking* is authorized on the basis of 47 U.S.C. 151, 152, 154(i) and (o), 301, 301(r), 303(v), 307, 309, 335, 403, 544(g), 606 and 615 of the Communications Act of 1934, as amended, as well as by sections 602(a), (b), (c), (f), 603, 604 and 606 of the WARN Act.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

6. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.” In addition, the term

“small business” has the same meaning as the term “small-business concern” under the Small Business Act. A small-business concern” is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.

7. *Small Businesses, Small Organizations, and Small Governmental Jurisdictions.* Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards. First, nationwide, there are a total of approximately 27.5 million small businesses, according to the SBA. In addition, a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.” Nationwide, as of 2007, there were approximately 1,621,315 small organizations. Finally, the term “small governmental jurisdiction” is defined generally as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.” Census Bureau data for 2011 indicate that there were 89,476 local governmental jurisdictions in the United States. We estimate that, of this total, as many as 88,506 entities may qualify as “small governmental jurisdictions.” Thus, we estimate that most governmental jurisdictions are small.

8. *Wireless Telecommunications Carriers (except satellite).* This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services. The appropriate size standard under SBA rules for the category Wireless Telecommunications Carriers (except satellite) is that a business is small if it has 1,500 or fewer employees. Census data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had employment of fewer than 1,000 employees. Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small.

9. *Broadband Personal Communications Service.* The broadband personal communications services (PCS) spectrum is divided into

six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a “small business” for C- and F-Block licenses as an entity that has average gross revenues of \$40 million or less in the three previous calendar years. For F-Block licenses, an additional small business size standard for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years. These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA. No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks. On April 15, 1999, the Commission completed the reauction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22. Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

10. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status. Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses. On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71. Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses. On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78. Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.

11. *Narrowband Personal Communications Service.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of

the two auctions that have already been held, “small businesses” were entities with average gross revenues for the prior three calendar years of \$40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the Narrowband PCS Second Report and Order. A “small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million. A “very small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million. The SBA has approved these small business size standards.

12. *Wireless Communications Services.* This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (WCS) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years. The SBA has approved these definitions.

13. *700 MHz Guard Band Licensees.* In 2000, in the 700 MHz Guard Band Order, the Commission adopted size standards for “small businesses” and “very small businesses” for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years. Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years. SBA approval of these definitions is not required. An auction of 52 Major Economic Area licenses commenced on September 6, 2000, and closed on September 21, 2000. Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the

licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.

14. *Lower 700 MHz Band Licenses.* The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits. The Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years. A “very small business” is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years. Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—“entrepreneur”—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years. The SBA approved these small size standards. An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses. A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 Cellular Market Area licenses. Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses. On July 26, 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band (Auction No. 60). There were three winning bidders for five licenses. All three winning bidders claimed small business status.

15. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*. An auction of 700 MHz licenses commenced January 24, 2008 and closed on March 18, 2008, which included, 176 Economic Area licenses in the A Block, 734 Cellular Market Area licenses in the B Block, and 176 EA licenses in the E Block. Twenty winning bidders, claiming small

business status (those with attributable average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years) won 49 licenses. Thirty three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) won 325 licenses.

16. *Upper 700 MHz Band Licenses.* In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses. On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block. The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) and winning five licenses.

17. *Advanced Wireless Services.* *AWS Services (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3)).* For the AWS-1 bands, the Commission has defined a “small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a “very small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million. For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but proposes to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.

18. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint Distribution Service (MMDS) systems, and “wireless cable,” transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the

Broadband Radio Service (BRS) and Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)). In connection with the 1996 BRS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of no more than \$40 million in the previous three calendar years. The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities. After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission’s rules.

19. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas. The Commission offered three levels of bidding credits: (i) A bidder with attributed average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years (small business) received a 15 percent discount on its winning bid; (ii) a bidder with attributed average annual gross revenues that exceed \$3 million and do not exceed \$15 million for the preceding three years (very small business) received a 25 percent discount on its winning bid; and (iii) a bidder with attributed average annual gross revenues that do not exceed \$3 million for the preceding three years (entrepreneur) received a 35 percent discount on its winning bid. Auction 86 concluded in 2009 with the sale of 61 licenses. Of the ten winning bidders, two bidders that claimed small business status won 4 licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six licenses.

20. In addition, the SBA’s Cable Television Distribution Services small business size standard is applicable to EBS. There are presently 2,436 EBS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities. Thus, we

estimate that at least 2,336 licensees are small businesses. Since 2007, Cable Television Distribution Services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies." The SBA has developed a small business size standard for this category, which is: All such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use the most current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard; that size standard was: All such firms having \$13.5 million or less in annual receipts. According to Census Bureau data for 2007, there were a total of 996 firms in this category that operated for the entire year. Of this total, 948 firms had annual receipts of under \$10 million, and 48 firms had receipts of \$10 million or more but less than \$25 million. Thus, the majority of these firms can be considered small. In the Paging *Third Report and Order*, we developed a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. A "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years. The SBA has approved these small business size standards. An auction of Metropolitan Economic Area licenses commenced on February 24, 2000, and closed on March 2, 2000. Of the 985 licenses auctioned, 440 were sold. Fifty-seven companies claiming small business status won. Also, according to Commission data, 365 carriers reported that they were engaged in the provision of paging and messaging services. Of those, we estimate that 360 are small, under the SBA-approved small business size standard.

21. *Wireless Communications Service*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission established small business size standards for the wireless communications services (WCS) auction. A "small business" is an entity with average gross revenues of \$40 million for each of the three preceding years, and a "very small business" is an entity with average gross revenues of \$15 million for each of the three preceding years. The SBA has approved these small business size standards. The Commission auctioned geographic area licenses in the WCS service. In the auction, there were seven winning bidders that qualified as "very small business" entities, and one that qualified as a "small business" entity.

22. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing*. This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: Transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment. The Small Business Administration has established a size standard for this industry of 750 employees or less. Census data for 2012 show that 841 establishments operated in this industry in that year. Of that number, 819 establishments operated with less than 500 employees. Based on this data, we conclude that a majority of manufacturers in this industry is small.

23. *Software Publishers*. Since 2007 these services have been defined within the broad economic census category of Custom Computer Programming Services; that category is defined as establishments primarily engaged in writing, modifying, testing, and supporting software to meet the needs of a particular customer. The SBA has developed a small business size standard for this category, which is annual gross receipts of \$25 million or less. According to data from the 2007 U.S. Census, there were 41,571 establishments engaged in this business in 2007. Of these, 40,149 had annual gross receipts of less than \$10,000,000. Another 1,422 establishments had gross receipts of \$10,000,000 or more. Based on this data, the Commission concludes that the majority of the businesses engaged in this industry are small.

24. *NCE and Public Broadcast Stations*. The Census Bureau defines

this category as follows: "This industry comprises establishments primarily engaged in broadcasting images together with sound. These establishments operate television broadcasting studios and facilities for the programming and transmission of programs to the public." The SBA has created a small business size standard for Television Broadcasting entities, which is: Such firms having \$13 million or less in annual receipts. According to Commission staff review of the BIA Publications, Inc., Master Access Television Analyzer Database as of May 16, 2003, about 814 of the 1,220 commercial television stations in the United States had revenues of \$12 (twelve) million or less. We note, however, that in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies.

25. In addition, an element of the definition of "small business" is that the entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply do not exclude any television station from the definition of a small business on this basis and are therefore over-inclusive to that extent. Also as noted, an additional element of the definition of "small business" is that the entity must be independently owned and operated. We note that it is difficult at times to assess these criteria in the context of media entities and our estimates of small businesses to which they apply may be over-inclusive to this extent. There are also 2,117 low power television stations (LPTV). Given the nature of this service, we will presume that all LPTV licensees qualify as small entities under the above SBA small business size standard.

26. The Commission has, under SBA regulations, estimated the number of licensed NCE television stations to be 380. We note, however, that, in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from

affiliated companies. The Commission does not compile and otherwise does not have access to information on the revenue of NCE stations that would permit it to determine how many such stations would qualify as small entities.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

27. This *FNPRM* proposes new or modified reporting or recordkeeping requirements. We seek comment on whether the reporting, recordkeeping, and other compliance requirements we adopt today should affect all entities in the same manner, or whether we should make special accommodations for non-nationwide entities.

28. We propose to require Participating CMS Providers, to gather, analyze and report on system performance metrics such as the geo-targeting, latency, and availability and reliability. We propose to require Participating CMS Providers to offer potential subscribers notice at the point of sale that more accurately reflects the extent to which they will offer WEA. We seek comment on whether Participating CMS Providers should be required to update their election to participate in WEA. We seek comment on the costs of compliance.

E. Steps Taken To Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

29. The RFA requires an agency to describe any significant alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): “(1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.”

30. As noted in paragraph 1 above, this *FNPRM* initiates a rulemaking to update the rules governing the WEA system by which Participating CMS Providers may elect to transmit emergency alerts to the public, a goal mandated by the WARN Act and consistent with the Commission’s obligation to protect the lives and property of the public. Primarily, this *FNPRM* seeks comment on four general categories of proposed rule changes: Ensuring the provision of effective WEA

Alert Messages, incorporating future technical advancements to improve WEA, developing consumer education tools, and improving WEA transparency.

31. With respect to ensuring the provision of effective WEA Alert Messages, we seek comment on whether there are any particular considerations that we should take into account when defining the nature of a Participating CMS Provider’s participation in WEA due to the electing entity’s size. We also seek comment on whether non-nationwide Participating CMS Providers require the regulatory flexibility implicated by certain provisions of Sections 10.330 and 10.500, and if so, whether we should retain the flexibility that the current language of those rules may provide only as applicable to them. With respect to incorporating technical advancements to improve WEA, we seek comment on whether support for additional languages would be unduly burdensome for non-nationwide Participating CMS Providers, and if so, whether there are steps that we can take to accommodate these entities to make compliance more feasible. We also seek comment on whether alternative geo-targeting standards would be appropriate for non-nationwide Participating CMS Providers. With respect to developing consumer education tools, we seek comment on whether we should give special consideration to non-nationwide entities if we were to require Participating CMS Providers to offer a consistent menu of opt-out choices, and on whether non-nationwide Participating CMS Providers should be required to make more lenient disclosures at the point of sale. Finally, with respect to improving WEA transparency, we propose the use of performance, rather than design standards to collect information relevant to our analysis of WEA’s system integrity. We also seek comment on whether it would be appropriate to adopt an alternative, less frequent reporting requirement for non-nationwide Participating CMS Providers, and on whether such Participating CMS Providers should also be allowed to collect less granular data on system performance in order to reduce any cost burdens entailed by these proposed recordkeeping and reporting requirements.

F. Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rules

32. None.

II. Further Notice of Proposed Rulemaking

A. Ensuring the Provision of Effective WEA Alert Messages

1. Defining the Modes of Participation in WEA

a. Discussion

33. We propose to adopt definitions for participation in WEA “in whole” and “in part” based on the attestations that CMS Providers are required to offer in their election letters, and on the notifications that CMS Providers offer potential subscribers at the point of sale. Specifically, we propose to define CMS Providers participating in WEA “in whole” as CMS Providers that have agreed to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in the entirety of their geographic service area and to all mobile devices on their network. Similarly, we propose to define CMS Providers participating in WEA “in part” as CMS Providers that have agreed to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in some, if not all of their geographic service area, and to some, if not all of the mobile devices on their network. We seek comment on these proposed definitions for CMS Provider participation in WEA. What are the technical prerequisites to offering WEA in a geographic area where a commercial mobile service is available? What factors lead Participating CMS Providers to offer WEA in a geographic area smaller than the area in which they offer commercial mobile service, or to fewer than all mobile devices on their network?

34. We also seek comment on our proposal to incorporate the extent to which CMS Providers offer WEA on mobile devices on their networks into our definitions of participation in whole and in part. Bluegrass Cellular states that “participation in whole has no bearing on the number or percentage of devices on the network that are WEA capable.” If this were the case, however, could a CMS Provider that offers WEA on only one mobile device qualify as participating in whole? Would this be consistent with a common-sense interpretation of “in whole” participation, or with our requirement that only CMS Providers participating in part must disclose at the point of sale

that WEA may not be available on all devices on this provider's network?

35. If participation in WEA in whole entails offering WEA on all mobile devices on the network, we seek comment on how "mobile devices" should be defined. For purposes of WEA, Section 10.10(j) defines "mobile devices" as "[t]he subscriber equipment generally offered by CMS providers that supports the distribution of WEA Alert Messages." This definition would encompass any mobile device connected to a Participating CMS Providers' network that is capable of receiving WEA Alert Messages, including but not limited to LTE-enabled and future generation tablet computers, and phablets. The record shows, however, that there is significant variation among Participating CMS Providers with respect to mobile devices on their networks that support WEA capability. For example, the Department of Homeland Security's *WEA Mobile Penetration Strategy Report* shows that WEA is already available on some tablets, including iPads running iOS 6 or greater, and emergency managers agree that WEA should be made available to the public "by all available means," including on tablets. On the other hand, CTIA suggests that while 4G-LTE tablets can be WEA capable, Wi-Fi-only tablets cannot, and states that "even if there are LTE-enabled tablets with the capability to receive cell broadcast messages through the network infrastructure, additional mobile device behavior standards and device development are required to support the handling and presentation of WEA messages." AT&T simply concludes that they "do not believe customers could view WEA messages on their existing tablets." We seek comment on the technical characteristics needed in a device to allow it to receive WEA Alert Messages. Would it be advisable for us to revise our definition of the term "mobile device" in our Part 10 rules to reflect the technical prerequisites to supporting WEA service? Finally, we seek comment on whether there are any barriers that may prevent the delivery of WEA to the full range of consumer devices for which Participating CMS Providers may wish to provide emergency alerts, and which could fall within the scope of the WARN Act.

36. In addition to defining participation in WEA in whole and in part with reference to the extent to which Participating CMS Providers offer WEA in the entirety of their geographic service area and to all mobile devices operating on their networks, we seek comment on whether these definitions should include the extent to which

Participating CMS Providers make WEA available using all available network technologies. To what extent should Participating CMS Providers' attestation that they will "support the development and deployment of technology for the 'C' interface, the CMS Provider Gateway, the CMS Provider infrastructure, and mobile devices with WEA functionality" be read as a commitment to support WEA using all available network technologies? To what extent do Participating CMS Providers currently use available technologies, such as Wi-Fi and small cells, in support of their WEA deployments? To the extent that Participating CMS Providers do not leverage all available technologies to further their participation in WEA, we seek comment on any factors that have contributed to this decision. We seek comment on any additional technologies already commercially deployed in CMS networks that could be leveraged in support of WEA, and on any additional functionalities that they may enable.

37. We seek comment on whether, in the event we adopt new definitions for participation in WEA, it would be appropriate to require CMS Providers to refresh and renew their election to participate in WEA. Further, notwithstanding whether we ultimately adopt new definitions for WEA participation, have the nature of CMS networks (having evolved from 2 and 3G to 4G technologies) and the requirements of Part 10 changed sufficiently since WEA's deployment to merit a renewed election? How frequently, if at all, should Participating CMS Providers be required to update their election in order to provide the Commission and the public with an up-to-date account of their WEA service offerings? Alternatively, should the occurrence of a certain event or events trigger a Participating CMS Provider's obligation to renew their election? If so, what specific event or events should give rise to a requirement for a Participating CMS Provider to renew their election? We seek comment on steps that we can take to mitigate any burden that disclosure of this information may present for Participating CMS Providers, and especially non-nationwide Participating CMS (e.g., small, regional, and rural providers). To what extent would any information that Participating CMS Providers may be required to disclose be considered sensitive? As WEA has evolved into a vital and relied-upon component of the Nation's public safety infrastructure, has this information

become necessary to understanding the Nation's readiness in times of disaster?

38. We anticipate that adopting these definitions for the modes of Participation in WEA would improve long-term participation in WEA while incenting achievement of evolving WEA objectives, consistent with Participating CMS Providers technology refresh cycle. We seek comment on this analysis. What steps can we take to encourage Participating CMS Providers to increase their engagement with WEA voluntarily? Further, we seek comment on whether clearly delineated modes of participation in WEA, taken together with a renewed election requirement, would facilitate emergency management agencies' response planning efforts by evincing the extent to which WEA is available in local communities. To what extent could information about each Participating CMS Provider's WEA service offerings by geographic area, device, and technology facilitate community reliance on WEA as an emergency management tool? What steps can we take to make this information as useful as possible to emergency management agencies while limiting burdens on Participating CMS Providers? Are there alternative approaches that we could consider in order to accomplish our objective of incenting increased engagement with WEA by Participating CMS Providers and emergency management agencies?

2. Infrastructure Functionality

39. We propose to amend Sections 10.330 and 10.500 to delete parallel statements that "WEA mobile device functionality is dependent on the capabilities of a Participating CMS Provider's delivery technologies" and that "[i]nfrastructure functions are dependent upon the capabilities of the delivery technologies implemented by a Participating CMS Provider." Since the time these provisions were adopted, Participating CMS Providers have overwhelmingly elected to utilize cell broadcast technology in fulfillment of their WEA election. Participating CMS Providers' infrastructure has proven to be universally capable of the basic functionalities described by Section 10.330 and 10.500. Accordingly, we believe these provisions are no longer necessary. Moreover, removing these provisions from our Part 10 rules would likely clarify for emergency management agencies considering whether to become authorized as WEA alert initiators that the alerting service WEA offers is capable of providing these critical functions, especially when taken together with the performance reporting and alert logging requirements

discussed below. We seek comment on this analysis.

40. We seek comment on whether Providers CMS Providers, and particularly non-nationwide CMS Providers (small, rural or regional Participating CMS Providers), continue to require the flexibility that this language may provide. There is no record about why these caveats remain necessary given changes in technology over the four years since WEA's deployment. Does the flexibility that this language may provide enable CMS Providers to participate in WEA that otherwise would be unable to do so? We invite comment from any Participating CMS Provider that would no longer be able to participate in WEA in whole or in part were we to remove this language from Sections 10.330 and 10.500. Such commenters should specify the manner in which their WEA service would be unable to comply with the requirements of Sections 10.330 and 10.500 were we to remove the prefatory language from those Sections, while still being capable of providing the WEA service described elsewhere in Part 10. Similarly, would removing this language make any WEA-capable mobile devices incapable of continuing to support WEA? If so, why? We seek comment on whether, if we retain this language at all, it should be modified to apply only to non-nationwide Participating CMS Providers.

3. Alert Message Preservation

41. We propose to amend Section 10.500 to state that WEA-capable mobile devices must preserve Alert Messages in an easily accessible format and location until the Alert Message expires. We seek comment on this proposal. We seek comment on the various approaches that Participating CMS Providers currently take to Alert Message preservation, and on any best practices that have emerged in this area. We seek comment on whether we should standardize the manner in which Participating CMS Providers preserve Alert Messages, informed by relevant best practices.

42. We seek comment on the extent to which Participating CMS Providers currently offer users the ability to access Alert Messages after they have been viewed and dismissed. Is BlackBerry, Android and Windows' practice of providing access to dismissed Alert Messages in an "inbox" or in "message history" consistent among all devices and providers? Section 10.420 specifies "Expiration Time" as a required CAP element in WEA Alert Messages. Is it feasible to use this CAP element as a basis for identifying the time at which an Alert Message should be discarded?

If WEA Alert Messages are retained past this expiration time, Denver OEMHS expresses concern that users will view expired Alert Messages and assume that they are current, causing confusion and panic. Where Alert Messages are preserved for user review, for how long are they preserved? If Alert Messages continue to be preserved after the underlying emergency condition has expired, are expired Alert Messages clearly marked as such to prevent user confusion? To what extent do Participating CMS Providers' existing practices achieve our goal of providing subscribers with a straightforward method of accessing Alert Messages until they expire?

43. Based on the comments, we believe that having continued access to WEA Alert Messages, including information regarding protective measures the public can take to protect life and property, could promote superior public safety outcomes. NYCEM and APCO have already suggested several use cases in which public response outcomes could be improved through easy access to active Alert Messages, such as to review details about shelter locations and commodity distribution points, and to recall complex information presented in longer WEA Alert Messages. Further, FEMA states that requiring appropriate alert preservation "would reduce user confusion, make training easier, and would require only one educational campaign if preservation was consistent across platforms." FEMA further states that requiring appropriate alert preservation "could alleviate some milling behavior, as some will search for alerts on the internet once dismissed to find the content." We seek comment on these analyses, as well as on additional use cases in which access to pending Alert Messages could have public safety benefits.

4. Earthquake Alert Prioritization

a. Background

44. As we discussed in the *Report and Order*, Sections 10.320 and 10.410 of the Commission's WEA rules require Participating CMS Providers to program their Alert Gateways to process Alert Messages on a FIFO basis, except for Presidential Alerts, which must be processed "upon receipt," before any non-Presidential Alert Messages that may also be queued for transmission. In the *WEA NPRM*, we sought comment on whether we should amend Section 10.410 of the Commission's rules to address prioritization at the CMS Provider's Gateway, in transit, and at the mobile device. Subsequently, the

FY2016 Omnibus Appropriations Explanatory Statement directed the FCC to report to the Appropriations Committee on all regulatory and statutory changes that would be necessary to ensure that earthquake-related emergency alerts can be received by the public in fewer than three seconds using IPAWS and its associated alerting systems, including WEA. Earthquake warnings are currently issued as Imminent Threat Alerts, but it is unclear whether Participating CMS Providers' WEA infrastructure is able to process and transmit these Alert Messages fast enough for them to provide timely warning to the public, particularly to those that are closest to the epicenter. To be effective, it is crucial that these messages are delivered as rapidly as possible because, in order to be effective, they must be delivered to the public in advance of fast-travelling seismic waves. ATIS states that it would be technically feasible to transmit earthquake-related Alert Messages from the Alert Gateway upon receipt in order to expedite their transmission to the public. AT&T states, however that "[w]ithout a re-design of the entire system, it is not possible to prioritize WEA messages on anything other than a FIFO basis."

45. We propose to require Participating CMS Providers to deliver earthquake-related Alert Messages to the public in fewer than three seconds, measured from the time an earthquake-related Alert Message is created to when it is delivered and displayed at the mobile device. We seek comment on the parameters for WEA to deliver earthquake alerts in less than three seconds, including any operational or regulatory changes that may be necessary in order to achieve this objective. We seek comment on the appropriate points by which to measure the applicable delivery timeframe. Should the applicable timeframe be measured from the time the alert originator issues the earthquake alert to the time it arrives at the end user device? In order to meet our end-to-end latency objective while respecting the limitations of Participating CMS Provider infrastructure, should the delivery delay from the IPAWS Alert Gateway to the end user be limited to two seconds? If Alert Messages are not received by all WEA-capable mobile devices in the target area simultaneously, how should we determine whether earthquake alerts are being delivered on time to meet our proposed requirement? We seek comment on these proposals, as well as any potential alternatives. We also seek

comment on their costs and benefits. In addition, we seek comment on the implementation timeframe in which delivery of earthquake alerts in fewer than three seconds could be achieved. Would this be achievable within the next thirty months? If not, how much time would be needed?

46. In order to help eliminate any delays that could unnecessarily affect the delivery of an earthquake alert, we seek comment on whether we should require prioritization of earthquake-related Alert Messages at the CMS Provider Alert Gateway by processing them “upon receipt,” before any non-Presidential Alert that may also be queued for transmission. We expect that prioritization at the CMS Provider Alert Gateway would remove the possibility of any queuing delay that may occur due to simultaneous arrival of multiple alerts. We seek comment on the extent to which prioritizing earthquake alerts at the Alert Gateway would reduce their end-to-end latency in instances where the Alert Gateway is processing more than one Alert Message at a time, as well as in other instances. We also seek comment on whether it would be appropriate to prioritize earthquake alerts in transit over other Alert Messages or control channel activity if giving them elevated priority at the Participating CMS Provider Alert Gateway would not sufficiently reduce delivery latency for them to arrive on time to save lives. We note that WEA Alert Message segments are transmitted by the Radio Access Network (RAN) every 80ms to 5.12 seconds. Could standardizing the transmission periodicity of WEA message segments reduce end-to-end alert delivery latency for all WEA Alert Messages? What are the advantages and disadvantages of shorter WEA transmission periods? Can they be changed dynamically? We seek comment on the extent to which giving earthquake alerts priority at the Alert Gateway, in transit, and through other means could enable earthquake-related Alert Messages to be delivered to the public in fewer than three seconds. Even if prioritization of earthquake alerts at the Alert Gateway, by itself, would not be sufficient, should we require such prioritization as an intermediate step towards this goal? We also seek comment on whether any other types of events merit higher priority treatment because of their extreme time sensitivity (e.g., hurricane, tornadoes, bioterrorism, epidemic crises).

47. We seek comment on any technical issues that prioritizing earthquake alerts in transit might present for Participating CMS Providers,

and on when this standard could feasibly be achieved. In the alternative, we seek comment on whether a different Alert Message latency requirement would strike a more appropriate balance between the costs of prioritization and the benefits of earthquake early warning. With respect to AT&T’s perspective that changing the way that Alert Messages are prioritized would require a “re-design of the entire system,” we seek comment on what, if any aspects of the WEA system would need to be redesigned in order to allow earthquake alerts to be delivered to the public in fewer than three seconds. Why, if at all, would changing the way that the Participating CMS Provider Alert Gateway prioritizes WEA Alert Messages affect any aspect of the WEA system other than the Participating CMS Provider Alert Gateway itself? From a technical standpoint, how is it currently possible to prioritize Presidential Alerts but not other types of Alert Messages? We anticipate that changing the manner in which this Gateway handles earthquake alerts would necessitate revisions to Gateway software, and relevant standards. We seek comment on this analysis. Can the Participating CMS Provider Alert Gateway’s standards and software be updated to allow it to distinguish earthquake alerts from other Imminent Threat Alerts, for example, by reference to the its CAP “event code” parameter? If not, what steps should we take to allow for earthquake-related alerts to be treated differently from other Imminent Threat Alerts? We anticipate that reducing the end-to-end latency for earthquake alerts will facilitate the use of WEA during such incidents, providing a unique mechanism in the United States for warning the public about earthquakes before the damaging tremors occur. We observe that Japan’s Earthquake and Tsunami Warning System (ETWS) is currently the only earthquake early warning service in the world that integrates mass earthquake-related communications with cellular networks. We anticipate that making WEA an effective platform for early earthquake warnings could, in combination with other earthquake mitigation efforts, help to mitigate the \$4.4 billion dollars in earthquake-related losses FEMA estimates that the United States suffers annually, by saving lives and preventing and mitigating injuries, thereby reducing income loss and by helping to mitigate damage to infrastructure by alerting members of the public who are in a position to take preparatory actions to prevent damage in the event of an earthquake. We seek comment on this

analysis, including to on the extent to which such prioritization would mitigate earthquake-related losses and on the costs of any related upgrades to WEA to permit such prioritization.

5. Disaster Relief Messaging

48. Commenters address several potential uses for WEA as a secondary messaging service, *i.e.*, a tool for communicating to the public emergency instructions intended to supplement information provided in the initial (primary) message. For example, NYCEM, Ashtabula County EMA and the California Governor’s OES observe that our new Alert Message classification, Public Safety Messages, creates a framework for secondary messaging that can assist with disaster recovery efforts. In the *Alerting Paradigm NPRM* as well as in the *WEA NPRM*, we sought comment on the extent to which emergency managers leverage targeted community feedback during and after emergency situations to disseminate and gather information. We observed that the Peta Jakarta initiative in Indonesia may provide an example of how a government alert initiator can leverage crowdsourced data to increase the overall effectiveness of alerts. While many emergency management agencies expressed concern about the potential for an additional data stream for crowdsourced information to overwhelm already understaffed Public Safety Answering Points (PSAPs), “NYCEM strongly believes that the future of crowdsourcing is through leveraging individual consumer cellular phones by upgrading the Wireless Emergency Alert System to support bidirectional, “many-to-one” communication.” CSRIC V finds that the ability to gather information from the community (many-to-one communication) can make alerting (one-to-many communication) more effective if “appropriately integrated into operations in a way that is responsive to the context of operation.” CSRIC V identifies three use cases where many-to-one communications could be a particularly beneficial supplement to one-to-many communications, gathering targeted community feedback, assessing evacuation compliance, and during active shooter scenarios. CSRIC V recommends that “FEMA should investigate modifying IPAWS to support ‘[m]any to one’ communication and data collection,” that “ATIS should study the feasibility of mechanisms for the delivery of “many to one” data to FEMA IPAWS,” and that the Commission should convene a panel of relevant experts to promote data science literacy among emergency managers and

establish best practices for using data gathered from “social media” monitoring. NAB and NPR also encourage the Commission to recognize the consumer benefits of Alert Messages that direct the public to turn on their radios for additional information during disaster recovery efforts.

49. In light of the foregoing, we seek comment on the potential for WEA to serve as a secondary messaging tool for emergency managers, specifically during disaster relief efforts. Specifically, we seek comment on how to enhance WEA’s support for many-back-to-one communication to facilitate emergency managers’ response planning efforts, and on whether WEA can be made a more useful tool during and after emergencies by facilitating its ability to interface other authoritative sources of information. Are there existing needs or gaps in the public communications tools currently available to emergency managers for use during disaster relief efforts that WEA can fill? What, if any, critical capacities does WEA lack that could inhibit its utility for post-disaster communications?

50. We seek comment on improvements to WEA that we should consider in order to ensure that it is optimized for this use, including by enabling WEA to be used as a tool for queueing the collection of targeted community feedback during disaster recovery efforts, to measure evacuation effectiveness, and during active shooter scenarios, as recommended by CSRIC V. We seek comment on whether using WEA in this manner could assist emergency management agencies’ resource-need pairing during emergencies, and on any additional use cases where “many-to-one” feedback could improve emergency response. We seek comment from technology vendors who have developed innovative solutions to aggregating and analyzing public response on the potential for implementation of those technologies in the emergency management context. We seek comment on whether best practices based in data science literacy are available to facilitate emergency managers’ skillful use of targeted community feedback, and if not, on whether we should direct the Public Safety and Homeland Security Bureau to convene a panel of experts to produce recommendations for this purpose, as recommended by CSRIC V. We also seek comment on the extent to which WEA can be used to funnel milling behavior towards other authoritative sources of information, such as radio or television, that may be better fit to provide critical information to the public in certain

circumstances. Would such an approach make WEA more useful to emergency managers in disaster relief situations?

B. Incorporating Future Technical Advancements To Improve WEA

1. Multimedia Alerting

51. As noted above, we are committed to allowing the public to realize the benefits of multimedia content in WEA, and we propose that an appropriate path to achieve this goal would be to require support for certain multimedia content, including thumbnail-sized images and hazard symbols, in Public Safety Messages on 4G LTE and future networks. We recognize that Participating CMS Providers have concerns about message delivery latency and network congestion that may result from including multimedia in WEA Alert Messages. Further, we acknowledge the record indicates that further standards development is necessary to support multimedia capabilities in WEA. As we discuss in further detail below, we believe these issues can be addressed given an appropriate regulatory framework and timeframe for compliance. Accordingly, we seek to develop the record on data constraints and technical parameters that should be associated with developing and implementing this functionality, and on a reasonable timeframe within which to require Participating CMS Providers to support it. Pursuant to the approach we propose to adopt, emergency management agencies could use Public Safety Messages to transmit thumbnail-sized images of evacuation routes in connection with Imminent Threat Alerts, an image of the face of a missing child after an AMBER Alert, or specific instructions for protective action to the access and functional needs community through the use of hazard symbols. We invite commenters to offer additional use cases where this functionality could help meet the public’s need for actionable, multimedia-enabled content during emergencies.

52. With respect to the potential for alert delivery latency, we observe that, according to the *ATIS Feasibility Study for LTE WEA Message Length*, WEA Alert Message segments can be transmitted every 80 milliseconds to 5.12 seconds. We reason, therefore, that a thumbnail-sized image could be transmitted over WEA cell broadcast in between 0.88 seconds and 56.32 seconds. We would not want the transmission of multimedia content to delay receipt of the most time-sensitive Alert Message text. At the same time, however, we also believe that there are

circumstances where the public would benefit from the receipt of multimedia content over WEA cell broadcast, even if they have to wait a minute to receive it. We therefore propose to require support for multimedia content only in Public Safety Messages, which may contain information that is not as time-sensitive as other types of Alert Messages. As Alert Messages in the Public Safety Message classification are designed for issuance for in connection with Alert Messages of other types, we believe they would provide an appropriate vehicle for multimedia-enabled content even when they cannot be delivered until minutes after the initial Imminent Threat or AMBER Alert delivers the primary, text-based Alert Message. We seek comment on this analysis.

53. We seek comment on any appropriate technical constraints that should apply to the multimedia content that Participating CMS Providers would be required to support. We anticipate that constraints on the permissible size of multimedia data files would also help Participating CMS Providers to manage network loading. The *ATIS Feasibility Study for WEA Supplemental Text* shows that transmitting a thumbnail-sized photo over WEA cell broadcast would require the transmission of at least eleven WEA binary messages. The *ATIS Feasibility Study for WEA Supplemental Text* considers a “thumbnail-sized photo” to be approximately 1.5 x 1.5 inches, to have a resolution of 72 dots per inch (DPI), and to be presented as using 120 x 120 pixels. ATIS reasons that a thumbnail-sized image would be 14,400 bytes in size if an 8-bit color scale is used, and would require the broadcast of 3600 octets, assuming 25 percent compression. We seek comment on whether that 14,400 bytes would be an appropriate maximum size for any multimedia content that a Participating CMS Provider could be required to transmit, as well as on any additional technical specifications or parameters that could facilitate multimedia transmission. We seek comment on any other implications or considerations we should take into account.

54. With respect to the integration of support for hazard symbols into WEA’s core functionality, CSRIC IV and CSRIC V recommend further study. The *ATIS Feasibility Study for WEA Supplemental Text* recommends that a study of the “User Experience Design” covering the “human-computer interaction” between mobile users and hazard symbols should be undertaken by the WEA stakeholders followed by global standardization. According to ATIS,

standards would be needed to identify the specific hazard symbols appropriate for this use, and to describe hazard warning icon delivery to the mobile device, either via mobile device software or cell broadcast. We seek comment on this analysis. Would it be feasible to integrate support for hazard symbols into WEA using the GSM-7 character set or a Unicode character set? If so, would this approach offer a less burdensome alternative to supporting hazard symbols in all Alert Messages?

55. With respect to concerns in the record regarding the possibility for increased network load, we propose to allow Participating CMS Providers to use network congestion mitigation strategies to feasibly and timely deliver multimedia-enabled Public Safety Messages. For example, we seek comment on whether staggering transmission of multimedia message segments could facilitate delivery of this content to subscribers, while mitigating potential network congestion concerns. Would it make sense to constrain any requirement to support multimedia to devices operating on 4G LTE and future networks? We seek comment on best practices that emergency management agencies could implement with respect to multimedia messaging if the transmission of such content implicated greater delay than text-only Alert Messages, and if Alert Messages that contained multimedia content could not be received by members of their communities on legacy networks or that are using legacy devices that no longer accept software updates. Recognizing the limitations of cell broadcast technology, to what extent would a requirement to support thumbnail-sized images and hazard symbols spur Participating CMS Providers to integrate new technologies into their WEA systems that could improve their ability to support the low-latency transmission of high-quality multimedia content? For example, commenters agree that Multimedia Broadcast Multicast Service (eMBMS) would permit the broadcast of "large amounts of data, including multimedia content." We seek comment on the technical steps that would be required to integrate technology that supports the transmission of multimedia content into WEA.

56. Allowing multimedia content in WEA Alert Messages would have tremendous public safety benefits. NYCEM, FEMA and TDI, for example, believe that allowing multimedia content in WEA Alert Messages would significantly contribute to Alert Message comprehension, particularly for individuals with disabilities, and FEMA adds that the use of graphical symbols

could improve Alert Message interpretation by individuals with limited English proficiency. NCMEC states that multimedia content would "greatly enhance the immediate usefulness of AMBER Alerts." San Joaquin County OES adds that multimedia content in WEA Alert Messages would hasten protective action taking and reduce milling. We seek comment on these analyses, as well as on any additional public safety benefits that multimedia messaging may enable. Even though Chester County EMA and The Weather Company suggest the inclusion of multimedia would be unnecessary in light of the availability of embedded references and "third party apps and television that users normally use," we find that unique benefits could result from including multimedia content in Alert Messages, especially as Participating CMS Providers' ability to support this functionality evolves along with advancements in technology. For example, WEA Public Safety Messages could be used to push an authoritative interactive map to every community member with a WEA-capable mobile device that shows the recipient's location relative to evacuation routes, shelter locations or resource distribution points. For communities struggling to recover from natural disasters, for example, this functionality would hold tremendous public safety value above and apart from multimedia-enabled emergency information available through other sources that in any case may not be as readily available as a consumer's mobile device. We also seek comment on whether those benefits would be particularly acute when implemented in an authoritative alerting services such as WEA that the public receives by default.

2. Multilingual Alerting

57. We observe that, according to commenters, expanding the language capabilities of WEA has potential to yield particular benefits for those with limited English proficiency. The record suggests, however, that the technical issues that prevented Participating CMS Providers from supporting multilingual Alert Messages when WEA was first deployed continue to limit their ability to support Alert Messages in languages other than English and Spanish. While FEMA states that IPAWS and CAP have the capacity to support Alert Messages in languages other than English and Spanish, additional languages are not currently supported in Participating CMS Provider networks. According to Participating CMS Providers, significant standards-setting work and potentially

support for new character sets would be required in order to enable them to support WEA Alert Messages in languages other than English and Spanish. Further, AT&T and Verizon observe that each additional WEA Alert Message language option will require Participating CMS Providers to transmit an additional Alert Message, which could threaten network capacity and risk alert delivery delays. In light of these ongoing issues and additional data, we agree with T-Mobile that "[t]he Commission should promote further study of the technical impact of multilingual WEA messages so that such messages can be incorporated into the WEA system in the future without creating unintended, adverse impacts."

58. Only 79 percent of individuals living in the United States that are 5-years old or older speak only English at home. According to the *ACS Language Report*, the top ten most spoken languages in the U.S. among individuals 5-years old or older are English, Spanish or Spanish Creole, Chinese, French or French Creole, Tagalog, Vietnamese, Korean, Arabic, Russian, and African languages. English-speaking ability varies greatly, even among speakers of the top ten languages in the United States. According to recent census data, "less than 50 percent of those who spoke Korean, Chinese, or Vietnamese spoke English 'very well.'" According to the *ACS Language Report*, "[p]eople who cannot speak English 'very well' can be helped with translation services, education, or assistance in accessing government services."

59. We seek comment on the potential benefits of requiring Participating CMS Providers to support Alert Messages in languages other than English and Spanish. To what extent would emergency management agencies initiate Alert Messages in languages in addition to English and Spanish were Participating CMS Providers required to support them? To what extent would CMS Provider support for additional languages incent emergency management agencies to further develop their capabilities in initiating Alert Messages in those languages where relevant to their respective communities? What, if any, additional steps can we take to support emergency management agencies' efforts to develop multilingual alerting capabilities? We expect that emergency management agencies already integrate individuals who don't speak English very well into their communities' emergency response plans, and we seek comment on whether increasing emergency management agencies' multilingual alerting capability could help to further

improve disaster preparedness for these communities. How do emergency management agencies currently expect individuals with limited English proficiency to receive and respond to emergency information? Are the emergency management mechanisms currently in place sufficient to safeguard those individuals during crises?

60. If we were to adopt rules to deepen WEA's language capabilities, we seek comment on whether we should prioritize support for those languages predominantly spoken in communities where, according to Census data, 50 percent or fewer speak English "very well" (e.g., Vietnamese, Chinese, Korean). Is the area of greatest need with respect to WEA's language capabilities ensuring that people who struggle with English comprehension can understand emergency communications? In the alternative, should we prioritize support for the largest language communities in the United States, notwithstanding the tendency of individuals in those language groups to speak English "very well"? We observe, for example, that, according to recent Census data, English and Spanish are by far the most popular languages in the United States, with Chinese and French a distant third and fourth.

61. We seek comment on whether supporting Alert Messages written in ideographic languages, such as Vietnamese, Chinese and Korean, would pose unique challenges for WEA stakeholders, including Participating CMS Providers and emergency managers. We note that WEA messages use GSM 7-bit encoding, and that the 3GPP standard for cell broadcast allows switching to the basic Unicode (UCS-2) character set, which includes all living languages, in order to provide support for modern, ideographic languages such as Kanji. Do Participating CMS Providers' WEA infrastructure and WEA-capable mobile devices support this functionality? If not, what steps would be necessary to incorporate Unicode into WEA? We also seek comment on whether emergency management agencies would face particular difficulties in initiating Alert Messages in ideographic languages. Does alert origination software currently support initiating Alert Messages in ideographic languages? If not, what steps would be required in order to upgrade this software? Are there additional standards, protocols and system updates that would be required to enable alerting in Vietnamese, Chinese and Korean in particular? Further, we seek comment on whether WEA Alert Messages can be made available in American Sign Language

(ASL) for subscribers that are deaf or hard of hearing. How would the provision of WEA Alert Messages in ASL allow for better accessibility to those who are ASL-fluent?

62. In addition to any potential changes to the WEA character set that may be required, we seek comment on any necessary preconditions to supporting additional languages in WEA in general, and to supporting Korean, Vietnamese or Chinese Alert Messages in particular. We also seek comment on whether support for additional languages would be burdensome for non-nationwide (e.g., regional, small, and rural) Participating CMS Providers, and if so, whether there are steps that we can take to accommodate these entities to make compliance more feasible. Would it be more appropriate for non-nationwide Participating CMS Providers to be required to support only the those particular languages, other than English and Spanish, that are predominant in the particular areas in which they provide service? We seek comment on any alternative approaches that would help achieve our objective of promoting accessibility of WEA Alert Messages.

3. Matching the Geographic Target Area

63. While our geo-targeting requirement, as amended above, will improve WEA geo-targeting by facilitating the delivery of Alert Messages to a more granular polygon level, the limitations of cell broadcast-based geo-targeting may result in continued over-alerting. According to CSRIC IV, the "ideal case" from an alert originator perspective would be where "all WEA-enabled mobile devices in the geographic area affected by an emergency event would receive the WEA Alert Message broadcast, and no mobile devices outside the defined alert area would receive those particular WEA Alert Message broadcasts." "However," CSRIC IV reports, "this ideal case cannot be realized using currently deployed cell broadcast alone." CSRIC V recommends that the Commission collaborate with WEA stakeholders to develop standards and implement systems that support enhanced, device-based geo-targeting. CSRIC V recommends that the Commission set a goal that Participating CMS Providers geo-target Alert Messages in a manner that includes "100% of the targeted devices within the specified alert area with not more than .10 mile overshoot," and states that WEA stakeholders, including Participating CMS Providers, "have committed to working to close the gap

between current capabilities and aspirational goals."

64. As we emphasize above, more granular geo-targeting remains a critical need for both consumers and emergency managers. Accordingly, we propose to require Participating CMS Providers to match the target area specified by alert originators. We anticipate that this may require Participating CMS Providers to leveraging the location sense of WEA-capable mobile devices on their networks. In the following paragraphs, we seek comment on how we should define "matching" the target area for purposes of any such requirement, as well as on steps that alert initiators and Participating CMS Providers can take to minimize alert delivery latency and maximize the amount of data available for other Alert Message content. We also seek comment on the readiness of innovations that could allow alert initiators to geo-target more flexibly, and to smaller areas.

65. As an initial matter, should a Participating CMS Provider be considered to have "matched" the targeted area for the purpose of this requirement if, as recommended by CSRIC V, 100 percent of devices within the targeted area receive the Alert Message with not more than 0.1 mile overshoot? In the alternative, if providers are leveraging the same technology in the WEA context that is being used to provide indoor location, would it make sense to harmonize our geo-targeting accuracy requirement for WEA with our wireless E911 indoor location accuracy requirements? If not, why not? Further, would an alternative accuracy requirement be appropriate for non-nationwide Participating CMS Providers? We seek comment on any alternative approaches to defining "matching" for the purposes of assessing compliance with our proposed requirement. In circumstances where Participating CMS Providers are unable to match the target area, we propose that they should be required to provide their best approximation of the target area, as we require in the *Order*. We seek comment on this approach.

66. The record indicates that it will be technically feasible for Participating CMS Providers to comply with our requirement that they geo-target Alert Messages to an area that matches the target area, given appropriate time for the development of relevant standards and network modifications. We expect that Participating CMS Providers will be able to geo-fence their transmission of Alert Messages by transmitting target area coordinates to 100 percent of mobile devices in the target area, erring on the side of over-inclusion where

necessary. WEA-capable mobile devices would receive the Alert Message, including the target area coordinates, and determine whether they are currently located within the area those coordinates describe. If and only if the mobile device is within the target area, it would display the Alert Message to the subscriber. Commenters indicate that the suppression of the Alert Messages on mobile devices that are outside of the target area (geo-fencing) would allow Participating CMS Providers to match the target area specified by alert originators. We seek comment on this analysis, including any alternative approaches that Participating CMS Providers could use to match the target area or to implement a device-based approach to geo-targeting. The record indicates that technical issues, such as potential increases in message delivery latency, and reductions in the amount of data available for Alert Message text, can be resolved. We seek comment on how Participating CMS Providers will address these issues in conversation with other relevant WEA stakeholders. We seek comment on feasible methods Participating CMS Providers could use to mitigate sources of alert delivery latency that may be implicated by geo-targeting Alert Messages to an area that matches the target area specified by the alert originator. Participating CMS Providers and ATIS agree that meeting such an accurate geo-targeting standard could cause message delivery delay due to the device needing to determine its location before displaying the message, and due to network constraints. ATIS states that “the only currently readily available technology [for device-based geo-fencing] is GPS/GNSS” and that, without network assistance, the “time to acquire a GPS position can be over 13 minutes from a cold start . . . and up to 30 seconds for a warm start.” To what extent could Assisted GPS reduce these times and to what extent would the CMS network be burdened by providing this assistance? Further, we seek comment on how long the mobile device should wait while attempting to determine its current location (*e.g.*, acceptable Time-To-First-Fix (TTFF))? We note that, in the 911 context, we have established a maximum TTFF latency standard of 30 seconds for outdoor calls. Would that same standard be appropriate for geo-targeting to an area that matches the target area in light of our concerns about alert delivery latency? Finally, what should be the action of the mobile device if the mobile device location cannot be determined or cannot be determined within the time

limit, for example, if a mobile device is turned off, or if its location services are turned off? Should the default setting be to display the Alert Message?

67. We seek comment on the extent to which polygon compression techniques and alert originator best practices could maximize the amount of data that remains for Alert Message content if Alert Message coordinates are transmitted along with content to WEA-capable mobile devices. ATIS concludes that each coordinate pair would require data equivalent to that needed to display thirteen characters using current methods. However, researchers have examined methods of compressing coordinate data to consume between 9.7 percent and 23.6 percent of this data. We seek comment on feasible methods of leveraging polygon compression techniques in WEA. Should such techniques be used to set a maximum on the amount of data that can be consumed by polygon coordinates? Further, we seek comment on appropriate best practices for the number of decimal places to which a coordinate should be specified in order to conserve Alert Message space for text. CSRIC V recommends that alert originators determine the granularity of alert areas using vertices with two to five decimal places, depending on the nature of the hazard. CSRIC V finds that this would allow alert originators to target Alert Messages to with precision from 1.1 km to 1.1 meters. We seek comment on this recommendation and analysis. We note that, under current standards, a valid polygon consists of one-hundred coordinate pairs or fewer. Would rules or best practices be appropriate to determine the maximum number of coordinate pairs that should be included in an Alert Message? We seek comment on any additional technical challenges that Participating CMS Providers may face in complying with a more accurate geo-targeting standard, and on feasible methods of overcoming them.

68. While we believe that a device-based approach is most likely to enable Participating CMS Providers to match the target area, we seek comment on whether continued focus on network-based approaches could enable Participating CMS Providers to meet this accuracy requirement. For example, could geo-targeting be improved by leveraging the relatively smaller coverage areas of network-based technologies, such as small cell technology, distributed antenna systems (DAS), Wi-Fi access points, beacons, commercial location-based services (cLBS), institutional and enterprise location systems, or smart building

technology? We observe that these network-based technologies are widely deployed across the United States, and particularly in urban areas. Are CMS Provider networks configured to be able to send a WEA Alert Message over the control channel to these network-based technologies? What steps would be necessary to enable these technologies to assist in geo-targeting? Since the radio frequency propagation areas of these technologies are significantly smaller than the propagation areas for large cell sites, do they hold potential to improve geo-targeting? If not, why not? We also seek comment on the reliability of network-based technologies relative to the larger transmission facilities Participating CMS Providers traditionally use for WEA cell broadcast. Would relying on these technologies as a path forward to further improving geo-targeting leave the system vulnerable to becoming far less accurate when its accuracy is needed most, including during Imminent Threat Alerts?

69. Finally, we seek comment on whether additional, incremental improvements to geo-targeting could be achieved through standards updates that could allow Participating CMS Providers to support “nesting polygons.” Nesting polygons describe overlapping geographic areas where one polygon is situated, or “nests,” at least in part, within the boundaries of another, larger polygon. We seek comment on the extent to which existing network technologies can be leveraged to support nesting polygons, provided that relevant standards are updated to support them. We anticipate that a scenario where nesting polygons could be useful would be where one WEA Alert Message is appropriate for broadcast in the area where an incident, such as a chemical spill, has occurred (*e.g.*, an instruction to shelter in place), and another WEA Alert Message is appropriate for broadcast in the surrounding area (*e.g.*, an instruction to evacuate). We seek comment on this example, and invite commenters to specify additional use cases where it would be useful to be able to specify nesting polygons as a target area. According to ATIS, current standards support geo-targeting Alert Messages to multiple polygons, but existing standards would interpret multiple, overlapping polygons as the union of those polygons. Nesting polygons, on the other hand, would require CMS networks to sometimes interpret overlapping polygons as providing an instruction to “subtract” the internal polygon from the external polygon. According to ATIS, this functionality

would require an update to J-STD 101 as well as to the CAP standard. Would additional updates to alert origination software be required to support sending different messages to nested polygons?

70. We reason that achieving a geo-targeting standard whereby Participating CMS Providers can match the target area specified by an alert originator, either through device- or network-based techniques, would have tremendous benefits for public safety, and would eliminate the current dangers of poor geo-targeting that deter many emergency managers from becoming authorized as WEA alert originators. As discussed above, alert originators continue to demand more accurate geo-targeting from WEA before they will rely on it for emergency messaging in situations where it could be dangerous for individuals in areas adjacent to the target area to receive instructions intended only for individuals within the target area. Further, each incremental improvement that Participating CMS Providers can make to geo-targeting incrementally reduces alert fatigue, and increases the public's trust in WEA as an alerting platform, thereby reducing milling and, potentially, network congestion. We seek comment on this reasoning. Finally, we note that the *ATIS Feasibility Study for Supplemental Text* observed that delivering target area coordinates to the mobile device consistent with a device-based approach to geo-targeting would be the first step towards enabling WEA Alert Messages to support high-information maps, an improvement that emergency managers universally endorse. We seek comment on this observation. We also seek comment on alternative approaches we can take to improving WEA geo-targeting that would meet emergency managers' objectives while presenting lesser cost burdens to Participating CMS Providers.

4. WEA on 5G Networks

71. As we noted in our *Spectrum Frontiers* proceeding in July 2016, 5G networks "will enable valuable new services, and accelerating the deployment of those services is a national priority." As 5G networks and devices are developed, we expect WEA capabilities to evolve as well, consistent with Congress' vision in enacting the WARN Act. Given the importance of our Nation's public alert and warning systems to promoting emergency response readiness, we must ensure that WEA Alert Messages continue to provide the public with vital and necessary information to take appropriate action to protect their families and property.

72. While we understand that specific WEA capabilities for 5G networks and devices are not yet developed, we believe it is appropriate to seek comment on those capabilities now in light of the importance of designing these networks and devices with WEA capabilities in the early stages of development and throughout their development process. We disagree with CTIA that "it is premature at this time to address specific WEA capabilities that 5G might enable." Participating CMS Providers are already examining how best to integrate 5G technologies into their networks and industry stakeholders are currently working to shape the strategic development of the 5G ecosystem. We observe that Verizon is expected to begin 5G field trials in the next few months, and most experts predict that 5G will be widely available as soon as 2020. Further, the record suggests that technological upgrades can be costly and time-consuming, and we reason that including WEA alerts and warnings in 5G from the beginning can reduce total costs for Participating CMS Providers and hasten the deployment of improvements to WEA that could benefit the public. We therefore seek to initiate a dialogue that will foster a better understanding of how Participating CMS Providers intend to incorporate WEA capabilities into their 5G offerings, as well as to identify areas where we can help provide regulatory clarity, where needed, that can drive design and investment. For example, AT&T opines that "[w]ith the standards for 5G now under development, it is important to have agreement that 360 characters is the maximum length for 4G and future services."

73. In light of the foregoing, we seek comment on how to best incorporate alerts and warnings into the development of 5G technologies, and on how 5G technologies may enable further enhancements to WEA. What additional measures could the Commission take to facilitate the incorporation of WEA capabilities into 5G as these networks and devices are being designed? We seek comment on what, if any, steps the Commission should take to continue to ensure that WEA evolves along with advancements in technology in the 5G environment. What standards need to be developed or what other mechanisms need to be in place to ensure that WEA will be incorporated, and what actions are providers undertaking already? Elsewhere in this *FNPRM*, we seek comment on how improvements in technology can help improve WEA, in terms of microtargeting delivery of Alert Messages to a precise geographic

location, incorporating multimedia capabilities to improve message content, and facilitating swifter delivery of critical early earthquake alerts where every second counts. Is it anticipated that there will be additional space for WEA in 5G system information blocks than is currently allocated on the 4G control channel? To what extent will 5G introduce new capabilities that will permit additional life-saving enhancements to WEA? Are there any existing rules governing WEA that would be inapplicable to 5G or that would otherwise require adaptation to address 5G capabilities? We seek comment on how to enable further enhancements to WEA in 5G technologies, and on the obligations that CMS Providers that elect to provide WEA on 5G networks should incur, including related costs and benefits.

C. Developing Consumer Education Tools

1. Promoting Informed Consumer Choice at the Point of Sale

74. In the *WEA Third Report and Order*, the Commission adopted certain disclosure requirements in order to ensure that CMS Providers "convey sufficient information" to the public about the nature of their participation in WEA. CMS Providers electing in whole to transmit WEA Alert Messages are not required to provide notification of their participation at the point of sale. CMS Providers participating in part, on the other hand, are required to provide clear and conspicuous notice to new subscribers of their partial election at the point of sale. Specifically, CMS Providers participating in part must, at a minimum, state the following:

[[CMS provider]] has chosen to offer wireless emergency alerts within portions of its service area, as defined by the terms and conditions of its service agreement, on wireless emergency alert capable devices. There is no additional charge for these wireless emergency alerts.

Wireless emergency alerts may not be available on all devices or in the entire service area, or if a subscriber is outside of the [[CMS provider]] service area. For details on the availability of this service and wireless emergency alert capable devices, please ask a sales representative, or go to [[CMS provider's URL]].

75. Similarly, CMS Providers electing not to transmit WEA Alert Messages are required to offer, at a minimum, the following point-of-sale notification, "[[CMS provider]] presently does not transmit wireless emergency alerts." We noted that our decision allowed, but did not require the disclosure of additional information regarding the technical

limitations of the WEA service offered by a Participating CMS Provider.

76. We propose to require CMS Providers to disclose sufficient information at the point of sale to allow customers to make an informed decision about whether they would consistently receive WEA Alert Messages if they were to become a subscriber. To what extent do CMS Providers voluntarily provide additional information at the point of sale regarding the nature of their WEA participation beyond any disclosure required by our rules? Is our existing requirement, which requires CMS Providers participating in part to inform consumers at the point of sale that WEA “may not be available on all devices or in the entire service area,” sufficient to inform potential subscribers of whether they will receive a potentially life-saving alert through the Participating CMS Provider’s network? If this point-of-sale notification is insufficient to support educated consumer choice among providers, what additional information would help to inform this choice and allow market forces to more aptly influence further improvements to WEA?

77. If we base our proposed definitions of modes of participation in WEA on the devices a Participating CMS Provider makes WEA capable, the extent to which WEA is offered in their geographic service area, and the technologies they commit to use in support of their WEA service, would it be reasonable to require corresponding adjustments to consumer disclosures? We propose that, as a baseline, CMS Providers should provide information regarding the extent to which they offer WEA (in what geographic areas, and on what devices) at the point of sale. Would this information be sufficient to promote informed consumer choice? Should we also require CMS Providers to disclose at the point of sale the specific network technologies that they commit to use in offering WEA? We seek comment on the extent to which knowledge of the specific technologies that competing CMS Providers will use to support WEA would promote more informed consumer choice between CMS Providers. Should this disclosure also include the extent to which the Participating CMS providers’ networks are able to offer full 360-character Alert Messages? Would it be sufficient for Participating CMS Providers to provide potential subscribers with a link to a Web site describing their WEA capability at the point of sale, and would this approach help Participating CMS Providers to control costs associated with this proposal? With

respect to CMS Providers who elect not to participate in WEA, should they be required to make any additional disclosures at the point of sale to ensure that consumers are aware that they will not be able to receive any potentially life-saving alerts through service with this carrier? We seek comment on the potential benefits and costs that might be associated with additional point-of-sale disclosures.

2. Promoting Informed Consumer Choice About the Receipt of WEA Alert Messages

78. Section 602(b)(2) of the WARN Act provides that “any commercial mobile service licensee electing to transmit emergency alerts may offer subscribers the capability of preventing the subscriber’s device from receiving such alerts, or classes of such alerts, other than an alert issued by the President.” Section 10.500 of the Commission’s rules requires Participating CMS Providers’ WEA-capable mobile devices to maintain consumers’ opt-out preferences and display alerts to the consumer consistent with those selections. Pursuant to Section 10.280, a Participating CMS Provider may provide their subscribers with the option to opt out of Imminent Threat and AMBER Alerts, and must present the consumer “with a clear indication of what each option means, and provide examples of the types of messages the customer may not receive as a result of opting out.” The Commission adopted these requirements in the *First Report and Order* and the *Third Report and Order*, respectively, in order to allow Participating CMS Providers to accommodate variations in their infrastructures. In the *WEA NPRM*, we sought comment on the factors that lead consumers to opt out of receiving certain Alert Messages, including whether the manner in which Participating CMS Providers present their customers with opt-out choices impacts customer participation. We sought comment on whether Participating CMS Providers could offer customers a more nuanced opt-out menu in order to improve consumer choice.

79. Apple states that “enabling users to opt out of certain alerts at particular times or under specified conditions (such as when Do Not Disturb mode is turned on) would likely increase end-user participation.” Microsoft agrees that consumers should have control over what types of alerts are received, and when. NWS observes that opt-out choices are currently presented in an inconsistent manner across devices and

operating systems, and recommends standardizing the presentation of opt-out choices. On the other hand, ATIS expresses concern that “adding complexity to the opt-out options may actually increase the number of subscribers choosing to opt-out of WEA,” and Blackberry urges us to leave opt out functionality such as “scheduling” and “time of day” features to device manufacturers’ discretion. CSRIC V recommends that Commission collaborate with WEA stakeholders to create a set of “minimum specifications for an enhanced, secured and trusted, standards-based, CMSP-controlled WEA mobile device based application . . . in order to ensure high level support.”

80. We propose to require Participating CMS Providers to implement changes to the WEA application that would provide the public with more granular options regarding whether they receive WEA Alert Messages. In essence, Participating CMS Providers should provide consumers with tools that allow them to receive the alerts that they want to receive, in the manner they wish to receive them, and during the times they wish to receive them.

81. First, we propose to amend Section 10.280(b) to require that Participating CMS Providers offer their subscribers more informed choices among the Alert Message classifications that they wish to receive. We seek comment on the approaches that Participating CMS Providers currently take to “provide their subscribers will a clear indication of what each [Alert Message] option means,” and on specific improvements that they could make to the WEA application to enable consumers to make more informed choices among the different types of WEA Alert Messages they will receive. As demonstrated in Appendix F, some Participating CMS Providers offer their subscribers the option to choose whether to receive “Extreme” and “Severe” Alert Messages, as well as AMBER Alerts. Are these options sufficiently clear to empower consumers to make informed choices among Alert Messages? Would it be more clear if the options that Participating CMS Providers offered their subscribers tracked our alert message classifications (*i.e.*, “AMBER Alerts,” “Imminent Threat Alerts,” and “Public Safety Messages”), or would other names or phrases be more effective in promoting clear consumer choice about the types of Alert Messages they will receive? Would it be helpful to offer consumers a full explanation of the kinds of emergency situations about which they will receive information by virtue of

remaining opted in to receive Alert Messages of that category? For example, should consumers be informed that by remaining opted in to receive Imminent Threat Alerts they will receive information about imminent threats to their life and property, including significant or extraordinary threats that have either been observed in their area or likely to occur in the near future? Should consumers be informed that by remaining opted in to receive AMBER Alerts they will receive information that will empower them to assist law enforcement in locating abducted, lost, or otherwise missing children in their area that may be in imminent danger? We seek comment on best practices that have been developed with respect to the WEA interface that offer consumers a clear and easy-to-navigate menu of choices about whether and how to receive emergency alerts.

82. We also propose to require that Participating CMS Providers enhance their subscribers' ability to personalize how they receive the Alert Messages of their choosing. In the *Report and Order* we allow Participating CMS Providers to offer their consumers the option to change the attention signal and vibration cadence for Public Safety Messages, and to receive Public Safety Messages only during certain hours. We also allow Participating CMS Providers to provide their customers with the option to specify how the vibration cadence and attention signal should be presented when a WEA Alert Message is received during an active voice or data session. We seek comment on whether we should require Participating CMS Providers to offer their subscribers a more granular suite of choices for Imminent Threat Alerts and AMBER Alerts as well, including but not limited to the options that we allow Participating CMS Providers to offer to their subscribers for Public Safety Messages, and including the ability to modify the attention signal and vibration cadence that is presented when an Alert Message is received when the phone is idle. For example, would it be feasible to require Participating CMS Providers to allow users to limit the hours within which they receive WEA AMBER Alerts (*e.g.*, only between 8:00 a.m. and 8:00 p.m.)? Would it make more sense to offer consumers the option to modify or mute the attention signal and vibration cadence for Imminent Threat Alerts at night than to offer them the option to not receive Imminent Threat Alert during the night? In the alternative, we seek comment on whether we should require Participating CMS Providers to

offer their subscribers the option to cache Alert Messages, rather than simply to opt in or out. Cached Alert Messages could be received without the associated attention signal and vibration cadence, and stored in a "WEA Inbox." We seek comment on this approach. Taken together with our proposal that Alert Messages be appropriately preserved for user review, would providing users with the option to receive and cache Alert Messages provide many consumers with an appropriate balance between their perceived need to receive critical information during emergencies, and their desire to minimize the intrusiveness of the WEA attention signal and vibration cadence? We seek comment on the most common reasons why consumers opt out of receiving WEA AMBER Alerts and Imminent Threat Alerts, and on any additional steps that we can take to reduce these pain points through changes to the WEA opt-out menu.

83. In the alternative, we seek comment on whether to require all Participating CMS Providers to adopt a standardized opt-out menu, as recommended by NWS, and in a manner consistent with CSRIC V's recommendation. In particular, we seek comment on the model opt-out menu produced by NWS that we attach as Appendix F. Would the subscriber choices modeled here be appropriate to standardize among Participating CMS Providers and device manufacturers? Would a standardized opt-out menu facilitate familiarity with emergency alerts across service providers, promote personalization and improve the consumer experience with WEA? We seek comment on how we could design a model WEA opt-out menu in a manner that would improve personalization without significantly increasing user-facing interface complexity? Would it be appropriate for the Commission to host a workshop for this purpose? We encourage commenters to submit visual representations of ideal WEA interfaces into the record to facilitate discussion and review of alternatives to this model opt-out interface. We anticipate that requirements for subscriber opt-out choices would implicate changes to the *ATIS/TIA Mobile Device Behavior Specification* and to WEA application software. We seek comment on this analysis. In our consideration of whether to require a standardized WEA opt-out menu, should we make any particular accommodations for non-nationwide Participating CMS Providers (*e.g.*, small, regional, and rural providers)?

D. Improving WEA Transparency

1. Annual WEA Performance Reporting

84. The Commission's Part 10 WEA rules do not establish a procedure for Participating CMS Providers to report the results of any required tests to alert originators or to government entities. As such, there is no available method for analyzing the success of C-interface, Required Monthly, or State/Local WEA Tests. In the *WEA NPRM*, we sought comment on whether we should formalize a test reporting procedure for WEA and, if so, on the format and specific information that we should require Participating CMS Providers to report.

85. Hyper-Reach and the majority of public safety commenters support requiring Participating CMS Providers to report the extent of alert delivery latency, the accuracy of geo-targeting, and the availability and reliability of their WEA network because it would improve transparency and understanding of IPAWS/WEA among emergency managers, and because this transparency, in turn, could increase WEA adoption by non-participating emergency managers. CSRIC V states, for example, that "confidence in WEA among [Alert Originators] is dampened by perceived unpredictability of WEA geo-targeting," and building confidence "will require a means by which they can know that the polygon provided is what is actually delivered at the towers for distribution." Accordingly, CSRIC V recommends that ATIS and CTIA study methods of passively collecting and sharing data on the accuracy of geo-targeting with emergency management agencies. As demonstrated in Appendix G, NYCEM already independently generates performance reports on WEA geo-targeting, latency and reliability from actual Alert Messages issued in New York City. These tests demonstrate that some mobile devices in the target area do not receive WEA Alert Messages that are intended for them, and that some mobile devices do not receive Alert Messages intended for them until almost an hour after they are initially transmitted. APCO and Pinellas County EM urge the Commission to adopt reporting requirements specific enough to result in the production of uniform reports to emergency management agencies. While AT&T would support a requirement for Participating CMS Providers to report the results of RMTs, Sprint states that the kind of information we proposed to gather through test reporting (*i.e.*, the extent of geo-targeting and alert delivery latency) is not technically feasible to deliver.

Sprint and ATIS state that test reporting should be FEMA's responsibility.

86. We propose to amend Section 10.350 to require Participating CMS Providers to submit annual reports to the Commission that demonstrate the following system performance metrics for their nationwide WEA deployment (Annual WEA Performance Reports).

- *Geo-targeting.* The accuracy with which the Participating CMS Provider can distribute WEA Alert Messages to a geographic area specified by an alert originator.

- *Latency.* An end-to-end analysis of the amount of time that it takes for the Participating CMS Provider to transmit a WEA Alert Message.

- *Availability and Reliability.* The annual percentage of WEA Alert Messages that the Participating CMS Provider processes successfully, and a summary of the most common errors with Alert Message transmission.

We seek comment on these reporting elements and on the assessment methodologies Participating CMS Providers could use to produce Annual WEA Performance Reports below.

87. First, we seek comment on whether an annual requirement would achieve the right frequency of reporting. We reason that WEA performance data recorded over a period of one year would be sufficient to provide a statistically significant sample of data to inform Annual WEA Performance Reports. We seek comment on this rationale. We note that the record reflects concern that reporting requirements will "result in an increased burden for carriers participating in the service on a voluntary basis," as well as concern that there is currently no method available to alert originators to verify system availability and reliability except anecdotally. Does our proposed approach strike the appropriate balance between these concerns? If not, we invite commenters to recommend alternative periodicities within which such reports should be required.

88. In the alternative, would a single performance report to become due on a date certain, rather than an annual requirement, suffice to inform emergency managers and the public about WEA's capabilities? What types of changes, if any, would be substantive enough to warrant additional reporting beyond the initial report? For example, as Participating CMS Providers make material upgrades to their networks to incorporate new or updated technologies (e.g., 5G network technologies), would additional performance reporting be appropriate to

demonstrate that WEA continues to satisfy its performance requirements, or to highlight the extent to which any system improvements may improve a Participating CMS Providers' WEA service? Would it be appropriate to adopt an alternative, less frequent reporting requirement for non-nationwide Participating CMS Providers?

89. We seek comment on the methodology by which Participating CMS Providers may develop Annual WEA Performance Reports. We anticipate that State/Local WEA Tests would be an effective method of collecting annual report data since they are test messages that may be used by state and local emergency managers to evaluate system readiness, and are required to be processed consistent with our Alert Message requirements. We seek comment on this analysis. Would a different classification of WEA Alert Message be more appropriate for use to collect performance data, be more likely to produce results that are representative of Alert Message delivery under actual emergency conditions, or be less burdensome to implement? For example, AT&T states that Participating CMS Providers' reporting obligations should be limited to RMTs. We observe that Section 10.350 does not require Participating CMS Providers to deliver RMTs to mobile devices, and allows RMTs to be distributed "within 24 hours of receipt by the CMS Provider Gateway unless pre-empted by actual alert traffic or unable due to an unforeseen condition." Given these limitations, we seek comment on the value of RMTs as the basis for collecting Annual WEA Performance Report data. For example, could it be less burdensome and comparably effective for Participating CMS Providers to collect geo-targeting data from cell sites to which RMTs are delivered, as opposed to from mobile devices to which State/Local WEA Tests are delivered? To what extent could an analysis of the radio frequency propagation characteristics of the particular constellation of cell sites and cell sectors chosen to geo-target an RMT be used as an accurate proxy for the geographic area to which an Alert Message with the same target area would actually be delivered? Further, we seek comment on whether RMTs could provide meaningful data about alert delivery latency, given that Participating CMS Providers are allowed to delay up to 24 hours before retransmitting them. For example, would it be less burdensome and comparably effective to allow

Participating CMS Providers to schedule performance analyses during times when network usage is light? Would it be feasible and desirable to "pause the timer" on any applicable latency measurement at the CMS Provider Alert Gateway until such a time within 24 hours as becomes convenient to distribute the test message? Would such an approach undermine the representativeness of the latency data collected because actual Alert Messages are not held for any period of time in order to await more ideal network conditions?

90. We seek comment on the specific data that Participating CMS Providers would be required to gather in order to complete statistically significant reports on the accuracy of WEA geo-targeting, the extent of alert delivery latency, and system availability and reliability. Would determining the accuracy of geo-targeting require either a measurement of the contours of the geographic area within which WEA-capable mobile devices receive the message, or an estimation of the radio frequency propagation contours of the cell broadcast facilities selected to geo-target the Alert Message? Would it require comparing the target area to the alert area? Would an average deviation from the target area be an adequate measure of the accuracy of geo-targeting, or would emergency managers benefit from a report on the specific percentage of instances in which a Participating CMS Provider is able to meet our geo-targeting standard? Further, we seek comment on whether there are WEA geo-targeting scenarios that pose particular challenges to Participating CMS Providers. If so, should Participating CMS Providers be required to collect, analyze and report on geo-targeting under those specific circumstances? In any case, should Participating CMS Providers be required to collect, analyze and report on their ability to geo-target Alert Messages to geocodes, circles, and polygons of varying complexities, and in varying geographic morphologies? How many samples of each type would be necessary to produce a statistically significant report on the accuracy of a Participating CMS Providers' WEA geo-targeting capability nationwide?

91. Further, we seek comment on the specific data points that Participating CMS Providers would be required to gather in order to measure alert delivery latency. Would it be satisfactory to simply measure the amount of time that elapses from the moment that an alert originator presses "send" using their alert origination software to the moment that the Alert Message is displayed on

the mobile device? Would this single measurement suffice to give an alert originator an informed perspective on when the public could reasonably be expected to receive an Alert Message that they may send in a time-sensitive crisis? Would it also provide sufficient insight into system functionality to allow us to diagnose and address specific causes of alert delivery latency? Alternatively, would it be advisable to collect latency data at points in addition to the time of initial transmission and the time of receipt on the mobile device? For example, would it be advisable to analyze time stamps for Alert Messages received and transmitted at each of the A–E interfaces that comprise the WEA system in order to diagnose specific causes of latency, and to promote sufficient transparency to facilitate Commission action in the public interest? We seek comment on whether there are any particular circumstances in which Alert Messages are delivered more slowly than others. If so, should Participating CMS Providers be required to collect, analyze and report on alert delivery latency under those specific circumstances? In any case, should Participating CMS Providers be required to collect, analyze and report on alert delivery latency in varying geographic morphologies? How many independent measurements would be necessary to produce a statistically significant report on the degree of alert delivery latency at each WEA interface?

92. Similarly, we seek comment on the specific data points that Participating CMS Providers would be required to collect in order to satisfactorily measure the regularity of system availability and reliability. Would the alert logging requirement that we adopt today suffice to determine the WEA system's rate of success at delivering Alert Messages? Where do errors with Alert Message transmission tend to occur? If at junctures other than the C-interface, does this militate for the collection of system availability data at each interface in the alert distribution chain in addition to the CMS Provider Alert Gateway? If less than 100 percent of WEA-capable mobile devices in the target area receive a WEA message intended for them, would this implicate shortcomings in system availability or reliability? If so, should Participating CMS Providers also be required to collect data on the percentage of WEA-capable mobile devices for which an Alert Message is intended that actually receive it, and to report this data to the Commission as a fundamental aspect of system availability and performance?

Would this more nuanced approach be necessary in order to allow Participating CMS Providers to diagnose and correct any issues in alert distribution that may arise, and to promote sufficient transparency to facilitate Commission action in the public interest? Would an average measure of the rate of system availability be sufficient to grow emergency managers' confidence that the system will work as intended when needed, or do emergency managers require more granular data? Would it be necessary for Participating CMS Providers to log and report the CMAC attributes of each Alert Message at each of the C–E interfaces in order to establish whether the WEA system is able to deliver Alert Messages with “five nines” of reliability (*i.e.*, to establish whether 99.999 percent of WEA Alert Messages are delivered successfully)? Is this an appropriate standard of reliability for the WEA system? If not, why not?

93. We seek comment on whether emergency managers need any additional information beyond the accuracy of geo-targeting, the extent of alert delivery latency, and the regularity of system availability and reliability in order to understand the strengths and weaknesses of WEA as an alert origination tool. What, if any, additional data could Participating CMS Providers collect without incurring additional cost burdens, if we were to require them to collect each of the aforementioned data points? In the alternative, we seek comment on whether, and if so, to what extent making alert logs available upon emergency management agencies' request could satisfy their need for this information. Further, in addition to the possibility of requiring performance reports less frequently from non-nationwide Participating CMS Providers, we seek comment on whether such Participating CMS Providers should also be allowed to collect less granular data on system performance in order to reduce any cost burdens entailed by these proposed recordkeeping and reporting requirements.

94. We seek comment on whether we should defer to Participating CMS Providers regarding how they collect annual report data. Does such an approach provide Participating CMS Providers with increased flexibility that will reduce the burdens of these recordkeeping and reporting requirements? Would this approach only be appropriate for non-nationwide Participating CMS Providers? We seek comment on whether one effective and efficient method of generating national data for annual submission to the

Commission might be through the use of a representative sample of the different real world environments in which the WEA system would be used (*e.g.*, the dense urban, urban, suburban and rural morphologies defined by the ATIS–0500011 standard). We anticipate that the use of a representative sample of geographic morphologies could reduce any burdens that may be associated with providing Annual WEA Performance Reports by allowing Participating CMS Providers to collect less data. We seek comment on this analysis.

95. In the alternative, we seek comment on whether our State/Local WEA Testing model provides a framework to emergency managers that is sufficient to enable them to collect localized geo-targeting, latency, and system availability data without requiring additional involvement from Participating CMS Providers. We observe that, even in the absence of State/Local WEA Tests, NYCEM deployed a network of volunteers using mobile device offered by an assortment of Participating CMS Providers to collect data on WEA geo-targeting and latency in New York City. We applaud NYCEM for their voluntary effort to improve awareness about WEA system performance. We seek comment on whether such tests demonstrate that it would be feasible for any emergency management agency that wishes to gather performance statistics about WEA to do so for themselves. We seek comment on whether NYCEM's tests were able to produce statistically significant results, and if not, we seek comment on whether emergency managers would be willing to voluntarily collaborate and share test results with one another such that their findings could be aggregated into a statistically significant sample size.

96. We propose to treat Annual WEA Performance Reports submitted to the Commission as presumptively confidential, as we have reports in the E911, Emergency Alert System (EAS), and Network Outage Reporting System (NORS) contexts. Similarly, we propose to require that Participating CMS Providers grant emergency management agencies' requests for locality-specific versions of these performance metrics if and only if the requesting entity agrees to provide confidentiality protection at least equal to that provided by FOIA. Would the production of the proposed performance metrics require Participating CMS Providers to disclose information that they consider to be proprietary? Would offering such aspects of Annual WEA Performance Reports presumptively confidential treatment and only requiring that that

Participating CMS Providers share them with entities that agree to provide confidentiality protection at least equal to that provided by FOIA ameliorate any concerns about the disclosure of potentially sensitive competitive information? Further, we seek comment on steps that Participating CMS Providers can take to protect consumer privacy if producing reliable performance data requires information to be extracted from end user mobile devices. We observe that we are not requesting data at the end user/mobile device level, and therefore assume that any such information would be aggregated or, at a minimum, de-identified.

97. We anticipate that requiring Annual WEA Performance Reports would be likely to benefit emergency managers and the public. For example, we agree with Jefferson Parish EM that performance reports would help to improve system transparency with respect to “how long it took for the alert to reach the public,” whether there was “under alerting or overlap of the alerts,” and how often there are network conditions in which “Emergency Managers . . . could not send alerts.” We also agree with NYCEM that “[a]s with any other mission-critical system, mobile service providers should be required to capture and report system errors” in order to improve the system’s security posture. Further, FEMA and other commenting emergency management agencies agree that reporting geo-targeting, latency and system availability and reliability data could provide a compelling demonstration of WEA’s capacity to deliver timely, geo-targeted Alert Messages to specific areas and localities on a national scale, which could potentially increase WEA adoption by non-participating emergency managers who are “reluctant to activate WEA” without demonstrations of “coverage and delivery latency within their jurisdiction.” We seek comment on this assessment. We also seek comment on whether the greater transparency promoted by Annual WEA Performance Reports would better support alert originator and emergency operations center response planning. At the same time, we anticipate that regular

performance reporting requirements may also be useful to us in our efforts to bring to light and address potential areas for improvement in the WEA system nationwide. Regardless, we seek comment on whether increases in system transparency created by Annual WEA Performance Reports would be likely to improve our ability to act in the public interest to remediate any issues that the reports may reveal. We seek comment on our analysis of these potential benefits, and on any other benefits that Annual WEA Performance Reports may provide.

2. Alert Logging Standards and Implementation

98. As discussed above, we require Participating CMS Providers to log their receipt of Alert Messages at their Alert Gateway and to appropriately maintain those records for review. We now seek comment on whether and, if so, how to create a uniform format for alert logging, and on how the collection of more detailed system integrity data could be integrated into Annual WEA Performance Reports. We seek comment on the extent to which emergency managers would benefit from standardization of the format of Participating CMS Providers’ alert logs. Emergency managers confirm that there is value in log keeping by Participating CMS Providers, but CMS Providers confirm there is significant variation among them with respect to log keeping. Absent standardization of alert logging capabilities, would emergency managers be forced to contend with this variation in a manner that may significantly decrease the value of alert logs? Does this support the value proposition of a uniform standard consistently applied to Participating CMS Providers’ log keeping? Would the creation of a uniform format require the modification of standards relevant to Alert Gateway functionality? Would updates to Alert Gateway software also be required?

99. We also seek comment on whether the logging requirements we adopt today should extend beyond the CMS Provider Alert Gateway to the RAN and to WEA-capable mobile devices in furtherance of our goal of improving WEA transparency. We anticipate that alert logging beyond the Alert Gateway

will continue to improve the transparency of the WEA system, will contribute to emergency managers’ confidence that the system will work as intended when needed, and will improve our ability to detect and remediate any latent issues. We seek comment on this analysis. Will requiring Participating CMS Providers to log error reports and the CMAC attributes of Alert Messages at the CMS Provider Alert Gateway, as we do today, be sufficient to safeguard the integrity of WEA? If not, would it be advisable to require that Participating CMS Providers log this information at each of the C–E interfaces? We also seek comment on whether data other than, or in addition to error reports and CMAC attributes can be utilized as indicia of system integrity. Do Participating CMS Providers currently safeguard WEA system integrity through mechanisms other than, or in addition to alert logging? Further, we seek comment on whether requiring Participating CMS Providers to log data relevant to the accuracy of geo-targeting, the extent of alert delivery latency, and the system availability and reliability could contribute to the collection of data for Annual WEA Performance Reports? For example, if we were to require Participating CMS Providers to log alert receipt and transmission time stamps at each of the C–E interfaces, would that data contribute to their ability to report on specific sources of alert delivery latency?

E. Compliance Timeframes

100. The rules we propose in this *FNPRM* would leverage commercially available technologies to improve public safety. In this regard, we take notice of the current state of technology, and propose timeframes that are informed by the processes and procedures that Participating CMS Providers and mobile device manufacturers state are necessary to implement changes to their WEA service. For ease of reference, the table below sets forth proposed timeframes for compliance with our proposed rules. We also seek comment on timeframes within which we could reasonably expect Participating CMS Providers to reach other policy objectives we discuss in this *FNPRM*.

FIGURE 4—PROPOSED COMPLIANCE TIMEFRAMES

Rule amendment	Compliance timeframe
Defining the Modes of Participation in WEA	<i>Within 120 days of the rules’ publication in the Federal Register.</i>
Infrastructure Functionality	<i>Within 30 days of the rule’s publication in the Federal Register.</i>
Alert Message Preservation	<i>Within 30 months of the rule’s publication in the Federal Register.</i>
Earthquake Alerting	<i>Within 30 months of the rules’ publication in the Federal Register.</i>
Multimedia Alerting	<i>Within 30 months of the rules’ publication in the Federal Register.</i>

FIGURE 4—PROPOSED COMPLIANCE TIMEFRAMES—Continued

Rule amendment	Compliance timeframe
Multilingual Alerting	<i>We seek comment on reasonable timelines for Participating CMS Providers to support the transmission of WEA Alert Messages in various languages.</i>
Matching the Geographic Target Area	<i>Within 42 months of the rules' publication in the Federal Register, or within 24 months of the completion of all relevant standards, whichever is sooner.</i>
Promoting Informed Consumer Choice at the Point of Sale	<i>Within 120 days of the rules' publication in the Federal Register.</i>
Promoting Informed Consumer Choice through the WEA Interface	<i>Within 30 months of the rules' publication in the Federal Register.</i>
Annual WEA Performance Reporting	<i>Within 30 months of publication in the Federal Register of a notice announcing the approval by the Office of Management and Budget of the modified information collection requirements.</i>
Alert Logging	<i>We seek comment on reasonable timeframes for Participating CMS Providers to improve their tracking of system performance through alert logging.</i>

101. We propose a 30-month compliance timeframe for each proposed rule where compliance would be expected to require updates to standards and system specifications, as well as software updates for various components of the WEA system. These proposals include requiring Participating CMS Providers make changes to the WEA interface to promote informed consumer choice, requiring them to expedite delivery of earthquake-related Alert Messages, requiring them to provide a method of accessing pending Alert Messages, requiring support for multimedia content in Public Safety Messages, and requiring them to track and report on critical system performance metrics. We seek comment on this approach and analysis. In the *Report and Order*, we concluded that 30 months was an appropriate timeframe within which to require Participating CMS Providers to comply with rules that required updates to software and standards because it takes twelve months for appropriate industry bodies to finalize and publish relevant standards, another twelve months for Participating CMS Providers and mobile device manufacturers to develop and integrate software upgrades consistent with those standards into embedded plant and to complete required “technical acceptance testing,” and then six more months for Participating CMS Providers and mobile device manufacturers to deploy this new technology to the field. We seek comment on whether, unlike changes to WEA Alert Message content we adopt in the *Report and Order*, our WEA interface and Alert Message preservation proposals will likely only require changes to WEA-capable mobile devices, not Participating CMS Providers’ networks. If so, would mobile device manufacturers be able to integrate these enhanced capabilities

into their mobile devices on a faster timeline than we allow for compliance with rules that implicate more systemic changes?

102. With respect to our proposal to require Participating CMS Providers to produce and share critical system performance metrics, we anticipate that compliance would require updates to software and standards, as well as the coordinated efforts of professionals employed by Participating CMS Providers in order to design and implement appropriate data collection and sharing mechanisms. We seek comment on this reasoning. We seek comment whether compliance with this proposal would require updates to software and standards akin to those required by rules we adopt in the *Report and Order*, and, relatedly, on whether we could reasonably expect Participating CMS Providers to complete these updates within thirty months. We anticipate that some portion of the design planning required to determine the types of data and data collection methodologies appropriate for this task will take place during the course of this proceeding as industry stakeholders consider what compliance with our proposal would require of them. We also anticipate that this work could continue in parallel with the development of appropriate standards that describe this data collection task. Accordingly, we do not anticipate that any unique project planning component of this proposal will militate for allowing Participating CMS Providers additional time within which to comply, but we seek comment on this analysis. We also propose to provide Participating CMS Providers with a period of one year from the date of required compliance to produce their first annual WEA performance report (*i.e.*, within 42 months of publication in the **Federal Register** of a notice announcing the approval by the Office

of Management and Budget of the modified information collection requirements). We anticipate that one year will be sufficient for Participating CMS Providers to schedule any required data collections, and to aggregate that data into useful reports. We seek comment on this analysis.

103. We propose to require Participating CMS Providers to match the target area specified by alert originators within 42 months of the rules’ publication in the **Federal Register**, or within 24 months of the completion of all relevant standards, whichever is sooner. This is consistent with CSRIC V’s recommendations that we allow 18 months for the development of standards “in consideration of device compatibility, potential privacy issues, network congestion and consumer impacts due to increased data plan usage,” and that “[o]nce the standards work is complete, full system deployment including new handsets should be deployed within no more than 24 months.” We seek comment on this proposal. We also seek comment on whether and how this timeframe could be expedited, given the critical public need to employ more precise geo-targeting standards. Rather than adopting a single implementation timeframe, should we benchmark compliance timeframes based on a percentage of Alert Messages that meet the standard (*e.g.*, 40 percent of Alert Messages within two years, 80 percent of Alert Messages within six years)? Could this approach enable compliance for a percentage of Alert Messages in a shorter timeframe by enabling Participating CMS Providers to implement improvements to geo-targeting by facilitating implementation on a rolling basis and without waiting for industry standardization? We note that Participating CMS Providers voluntarily improved geo-targeting relative to our foregoing county-level

requirement without industry standardization. We seek comment on why standards would be necessary to support a “matching” requirement where they do not seem to have been needed to support a “best approximate” requirement. Further, CSRIC V finds that Participating CMS Providers would need 36–48 months to support nesting polygons, where 18–24 months is allocated to the modification of appropriate standards, and 18–24 months is allocated for development and implementation in Participating CMS Providers’ networks. We seek comment on this analysis. Why would enabling geo-targeting to nesting polygons require more time than the record shows is necessary to modify standards and software to support rules we adopt today? We seek comment on a reasonable timeframe within which to integrate additional network-based technologies, such as small cells, into the WEA infrastructure in order to achieve incremental improvements to WEA geo-targeting. Could such an integration take place within a shorter timeframe that that which we may allow for the integration of eMBMS or another ulterior technology into WEA because the network components that we consider above are already integrated into Participating CMS Providers 4G–LTE networks?

104. We propose to require compliance with our proposed point-of-sale notification requirements, and with our new definitions of the modes of participation in WEA insofar as they necessitate a renewed obligation to file election letters within 120 days of the rule’s publication in the **Federal Register**. We anticipate that compliance with these proposed rules would require time and effort on the part of attorneys and communications professionals employed by Participating CMS Providers in order to update any required point-of-sale notifications, and potentially to update Participating CMS Providers’ election letters on file with the Commission. We seek comment on this analysis, and relatedly, we seek comment on whether 120 days would be a sufficient period of time within which to expect Participating CMS Providers to complete this task. We observe that in the *Ensuring the Continuity of 911 Communications Report and Order*, the record supported allowing Participating CMS Providers 120 days to update their point-of-sale notification to advise consumers of the availability of a backup power solution that provides 911 access during a commercial power loss. We seek comment on whether 120 days would also be adequate in this

context, and if not, we invite commenters to provide specific details as to how our proposal presents unique challenges. We also seek comment on whether we could reasonably expect Participating CMS Providers to file any required update to their election letter within this 120-day timeframe, noting that in the *WEA Third Report and Order*, we required CMS Providers to file their election letter within 30 days.

105. We propose to require compliance with our WEA infrastructure functionality proposal within 30 days of the rules’ publication in the **Federal Register**. We do not anticipate that Participating CMS Providers would need to take any action to achieve compliance with this proposed rule, if adopted, because, as we reason above, Participating CMS Providers do not rely on the language we propose to remove. We seek comment this analysis. If the deletion of this language would require CMS Providers otherwise in compliance with our Part 10 rules to take action in order to continue to participate, what specific steps would be necessary to comply with these rules as revised? How much time would those steps take to complete? If any Participating CMS Provider were to fall within this category, would it likely be a non-nationwide Participating CMS Provider? If so, would it be appropriate to make any special accommodations for non-nationwide Participating CMS Providers to facilitate their continued participation?

106. We also seek comment on reasonable timeframes in which to expect Participating CMS Providers to be able to reach the other policy objectives that we discuss above, including developing a uniform standard for alert log formatting and developing additional alert logging capabilities throughout the WEA system and deepening WEA’s language support capabilities. With respect to alert logging, we seek comment on whether one year would be sufficient for industry to complete a standard to describe a uniform alert log format that will facilitate comparison of Participating CMS Providers’ WEA services, as we concluded would be appropriate for standards necessitated by rules we adopt in the *Report and Order*. We also seek comment on whether 30 months would be an appropriate period of time within which to require logging at additional junctures in the WEA system. Would software updates be required to implement this change?

107. We seek comment on a reasonable timeframe within which to

require Participating CMS Providers to support transmission of Alert Messages in languages in addition to English and Spanish. Could standards appropriate to support additional languages in WEA, including ideographic languages, be completed or otherwise integrated into WEA within one year, consistent with our reasoning about the time that it takes to complete standards in the *Report and Order*. We seek comment on whether software would need to be updated in order to support additional languages as well given the two-year timeframe that we allow Participating CMS Providers to update software to support a language in addition to English (*i.e.*, Spanish) in the *Report and Order*. Would it be possible for Participating CMS Providers to bundle software upgrades enabling support for additional languages into any software upgrades that they may undertake in order to comply with our Spanish-language requirement? If not, why not?

108. Finally, we seek comment on a reasonable implementation timeframe for our proposal to prioritize earthquake-related Alert Messages at the Participating CMS Provider Alert Gateway. Would Participating CMS Providers be able to implement this change on the same 30-month timeframe that we allow for other proposals anticipated to necessitate changes to software and standards? Could any changes to the prioritization of earthquake-related Alert Messages in transit be completed within the same timeframe? If not, what additional considerations should we take into account in our analysis of what changes in Alert Message prioritization in transit will require? We seek to implement each of our proposed rules in as swift of a timeframe as possible, while ensuring that our proposed rules do not pose undue burdens for Participating CMS Providers, recognizing the current state and technology. We invite commenters to offer into the record any additional considerations relevant to compliance with our proposed rules.

III. Ordering Clauses

109. Accordingly, *it is ordered*, pursuant to Sections 1, 2, 4(i), 4(o), 301, 303(r), 303(v), 307, 309, 335, 403, 624(g), 706, and 715 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 154(o), 301, 301(r), 303(v), 307, 309, 335, 403, 544(g), 606, and 615, as well as by sections 602(a), (b), (c), (f), 603, 604 and 606 of the WARN Act, 47 U.S.C. 1202(a), (b), (c), (f), 1203, 1204 and 1206, that the *WEA Report and Order and Further Notice of Proposed*

Rulemaking in PS Docket Nos. 15–91 and 15–94 is hereby adopted.

110. It is further ordered that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of the *WEA Report and Order and Further Notice of Proposed Rulemaking*, including the Final and Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

Federal Communications Commission.

Marlene H. Dortch,

Secretary, Office of the Secretary, Office of the Managing Director.

[FR Doc. 2016–26901 Filed 11–7–16; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 18

[Docket No. FWS–R7–ES–2016–0056; FF07CAMM00–FX–F R133707PB000]

RIN 1018–BA66

Co-Management of Subsistence Use of Polar Bears by Alaska Natives; Conservation of the Alaska-Chukotka Polar Bear Population

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Advance notice of proposed rulemaking; solicitation of comments.

SUMMARY: The U.S. Fish and Wildlife Service (Service) is authorized to issue regulations to facilitate the implementation of the sustainable harvest management obligations under the *Agreement between the Government of the United States of America and the Government of the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population* (U.S.-Russia Agreement). To that end, the Service is soliciting public comment on the development of a regulatory program and local management structures for carrying out the responsibilities under the U.S.-Russia Agreement and title V of the Marine Mammal Protection Act of 1972, as amended. The Service is also interested in entering into a cooperative agreement with an Alaska Native Organization for the purposes of involving subsistence users in conservation and management of polar bears in Alaska, including the creation of effective two-way communication pathways; collecting and exchanging local observations on polar bears for the development of sound management

practices for polar bears in Alaska; managing and monitoring the harvest of polar bears for subsistence use; and developing a polar bear co-management structure.

DATES: We will accept comments received or postmarked by the end of the day on January 9, 2017.

ADDRESSES: *Comment submission:* You may submit comments by one of the following methods:

- *U.S. mail or hand-delivery:* Public Comments Processing, ATTN: FWS–R7–ES–2016–0056, U.S. Fish and Wildlife Service Headquarters, MS: BPHC, 5275 Leesburg Pike, Falls Church, Virginia 22041–3803.

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments to Docket No. FWS–R7–ES–2016–0056.

FOR FURTHER INFORMATION CONTACT:

Hilary Cooley, Polar Bear Project Leader, U.S. Fish and Wildlife Service, Marine Mammals Management Office, 1011 East Tudor Road, Anchorage, Alaska 99503; by telephone (907) 786–3800; or by facsimile (907) 786–3816. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at (800) 877–8339.

SUPPLEMENTARY INFORMATION: One of the purposes of this advance notice of proposed rulemaking (ANPR) is to solicit public comments on developing and administering a co-management framework to manage the subsistence use of polar bears in Alaska. This effort would include implementation of the sustainable harvest management obligations of the *Agreement between the Government of the United States of America and the Government of the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population* (U.S.-Russia Agreement) as implemented under title V of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*). Activities under a cooperative agreement could include the following: collaborating to collect information on the distribution, abundance, and health of polar bears; managing human and polar bear conflicts; assessing and protecting important habitats; and monitoring and managing subsistence harvest. We are also soliciting preliminary ideas about the content of regulations to facilitate implementation of harvest regulations for polar bears in the Alaska-Chukotka population in accordance with our obligations under the U.S.-Russia Agreement.

Background

As previously mentioned, the U.S.-Russia Agreement is implemented in the United States through title V of the MMPA. Congress passed the MMPA in 1972 to prevent marine mammal species and population stocks from declining beyond the point at which they ceased to be significant functioning elements in the ecosystems of which they are a part. The MMPA prohibits, with certain exceptions and exemptions, the take of marine mammals. Prior to enactment of title V of the MMPA and ratification of the U.S.-Russia Agreement, section 101(b) of the MMPA governed the take of polar bears from the Alaska-Chukotka population, providing a general exemption for the taking of all marine mammals by any Indian, Aleut, or Eskimo who lives in Alaska and who dwells on the coast of the North Pacific Ocean or the Arctic Ocean if such taking is for subsistence purposes or for the purpose of creating and selling authentic native articles of handicraft and clothing, provided that the taking is not accomplished in a wasteful manner. Under MMPA section 101(b), if the Secretary determines any species or stock of marine mammal subject to taking by Indians, Aleuts, or Eskimos is depleted, the taking may be regulated.

The MMPA also recognizes the intrinsic role that marine mammals have played and continue to play in the subsistence, cultural, and economic lives of Alaska Natives. The Service, in turn, recognizes the important role that Alaska Natives can play in the conservation of marine mammals such as the polar bear. Amendments to the MMPA in 1994 acknowledged this role by authorizing the Service to enter into cooperative agreements with Alaska Natives for the conservation and co-management of subsistence use of marine mammals (16 U.S.C. 1388).

Upon enactment of title V of the MMPA and ratification of the U.S.-Russia Agreement in 2007, the MMPA's Alaskan Native exemption under section 101(b) no longer applied with respect to take from the Alaska-Chukotka population of polar bears (16 U.S.C. 1423g). The U.S.-Russia Agreement and title V of the MMPA continues to allow consumptive use of polar bears for subsistence purposes or the creation of authentic native handicrafts and clothing by Alaskan natives, but subjects that use to a number of restrictions, including those adopted by the U.S.-Russia Polar Bear Commission (Commission), the bilateral authority established under the U.S.-Russia Agreement.